

Single Case

Small Bowel Bleeding Caused by a Small Bowel Lipoma in a Patient with Hemodialysis

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Keywords

Small bowel bleeding · Lipoma · Hemodialysis · Capsule endoscopy

Abstract

Introduction: Small bowel bleeding is being diagnosed with increasing frequency with the development of capsule endoscopy. **Case Presentation:** We report a case of lipoma that caused hematochezia in an 80-year-old woman with ischemic heart disease receiving antiplatelet therapy and on hemodialysis for renal failure. Contrast-enhanced computed tomography scans, esophagogastroduodenoscopy, and colonoscopy failed to identify the source of hematochezia. Capsule endoscopy revealed a small bowel tumor, which was removed through laparoscopic surgery without interruption of antiplatelet agents. The small bowel tumor was pathologically diagnosed as a lipoma. There was no recurrence of the hematochezia after surgery. **Conclusion:** Lipomas could cause hematochezia. With appropriate pre-operative testing, comorbidity assessment, and surgical planning, we believe that surgical resection is a safe treatment option for the removal of small bowel lipomas even in patients who are on hemodialysis or are taking antiplatelet agents.

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Introduction

Obscure gastrointestinal bleeding (OGIB) accounts for 5% of all gastrointestinal bleeding [1]. Patients on hemodialysis are at increased risk of gastrointestinal bleeding compared to nonhemodialysis patients [2]. Lipomas account for 4% of the benign neoplasms of the

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gastrointestinal tract and are a rare cause of gastrointestinal bleeding [3]. In recent years, small bowel bleeding is being diagnosed with increasing frequency with the development of capsule endoscopy (CE) and double-balloon endoscopy [4]. It has been reported that antiplatelet agents increase the frequency of OGIB [5] and chronic kidney disease worsens the prognosis of gastrointestinal bleeding [6]. We report a case of small bowel bleeding in a patient with hemodialysis and receiving antiplatelet therapy, who was identified with a small bowel tumor by CE that was successfully resected using laparoscopic surgery without interruption of antiplatelet therapy.

Case Report

An 80-year-old woman presented to a primary care hospital with hematochezia for the past 2 days and chest pain. She had a history of chronic renal failure (was on hemodialysis), ischemic heart disease, and postoperative sigmoid colon cancer. She was also taking an antiplatelet agent (low-dose aspirin) for ischemic heart disease. Blood tests revealed a hemoglobin level of 5.8 g/dL (severe anemia). The patient was diagnosed with chest pain secondary to ischemic heart disease exacerbated by anemia due to new-onset gastrointestinal bleeding. Following a blood transfusion, her anemia improved and her chest pain resolved. She was referred to our hospital for further examination of hematochezia. On physical examination, she had a temperature of 36.6°C, a pulse rate of 90 beats per minute, a blood pressure of 165/80 mm Hg, and a respiratory rate of 12 breaths per minute. An abdominal examination revealed no abdominal tenderness and no palpable tumor. Laboratory tests revealed anemia (hemoglobin 7.4 g/dL). Electrocardiogram findings were in sinus rhythm with no ST changes. After she was admitted, there was no longer any evidence of progressive anemia or hematochezia. Contrast-enhanced computed tomography (CT) failed to identify the cause of the hemorrhage. Esophagogastroduodenoscopy and a colonoscopy revealed no evidence of gastrointestinal bleeding. A week after her last hematochezia episode, CE revealed a submucosal tumor with erosions in the middle jejunum (Fig. 1). Subsequent double-balloon endoscopy was attempted but failed to reach the lesion. The results of previous examinations showed no lesions other than a small bowel submucosal tumor that could have caused hematochezia. Our differential diagnoses at this stage, based on our findings and her presentation, included, but were not limited to, gastrointestinal stromal tumor, primary small bowel cancer and metastatic small bowel tumor. The antiplatelet therapy was temporarily discontinued but was resumed after CE as the anemia had not progressed. She had some serious underlying medical conditions; however, these were stable and surgical treatment was planned because rebleeding would be life-threatening. Subsequently, laparoscopic resection of the small bowel was performed (preoperative hemoglobin level, 8.5 g/dL). In the perioperative period, surgery was performed without discontinuation of antiplatelet agents. Intraoperatively, a neoplastic lesion was observed on the serosal side of the small bowel (120 cm distal to the ligament of Treitz) (Fig. 2). In addition, extensive adhesions were observed that may have resulted from previous surgery for sigmoid colon cancer. Segmental resection of the small bowel, followed by end-to-end anastomosis, was performed. This procedure was hitch-free. The surgical specimen formed a 6 cm small columnar tumor with erosions on the grossly visible tumor surface (Fig. 3a). Histopathological examination revealed a nodular stromal tumor composed of mature fat cells in the submucosal layer with inflammatory cell infiltration and fibrosis, a finding compatible with the diagnosis of lipoma (Fig. 3b). The patient recovered uneventfully and was discharged 12 days later (predischARGE hemoglobin level, 8.3 g/dL). At an outpatient visit 4 months later, she had no signs or symptoms of hematochezia, and her progress was uneventful.



Fig. 1. Capsule endoscopy revealed a submucosal tumor in the small bowel.

Discussion

We report a case of lipoma responsible for hematochezia in a patient with ischemic heart disease receiving antiplatelet therapy and on hemodialysis for renal failure. Lipomas are benign nonepithelial tumors that can occur anywhere in the gastrointestinal tract; Mayo et al. [3] reported that lipomas account for 4% of all benign neoplasms of the gastrointestinal tract. The frequency by site is as follows: colon (64%), duodenum/small bowel (31.2%), stomach (3.2%), and esophagus (1.6%). Lipomas that measure more than 5.1 cm in diameter are reported to be potentially symptomatic. Major symptoms are reported to be abdominal pain (68.7%), nausea/vomiting (35.3%), bloody stools/gastrointestinal bleeding (33.3%), anemia (10.9%), abdominal distention (12.2%), constipation (8.9%), and weight loss (7.5%) [7]. OGIB is defined as unexplained bleeding with a negative endoscopic evaluation (such as esophagogastroduodenoscopy, colonoscopy, and CE). In OGIB, antithrombotic therapy has been reported to be associated with positive capsule endoscopic findings in the small bowel [5]. The incidence of gastrointestinal bleeding and its associated mortality rate in patients on hemodialysis are reported to be higher than in those in patients not on hemodialysis [2, 6]. The possible reasons are the use of anticoagulants (such as heparin [8]), increased exposure to inflammation and oxidative stress [9], and possible damage to the gastrointestinal mucosa [10] in patients on hemodialysis. In addition, patients on hemodialysis have comorbidities. In this case, the patient had a 6 cm lipoma in the jejunum and was on hemodialysis and receiving antiplatelet therapy, putting her at a high risk of bleeding.

The development of CE and double-balloon endoscopy has made it possible to detect the cause of small bowel bleeding [4]. In cases of heavy bleeding, arteriography and high-resolution CT arteriography are favorable options [11]. However, when bleeding stops spontaneously, the source of the bleeding might be difficult to detect. In this case, contrast-enhanced CT could not identify the lesion. This was believed to be due to the presence of intestinal gas and constipation that made the identification of the lipoma difficult. If the CT scan would have been performed again after some time, the tumor could have been confirmed. In addition, the double-balloon endoscope did not reach the lesion, possibly due to adhesions from a previous colorectal cancer surgery. In this case, the CE was able to identify the lesion, but caution should be exercised because false negatives have been reported in large tumors in the small bowel and in areas of the bowel with a rapid transit

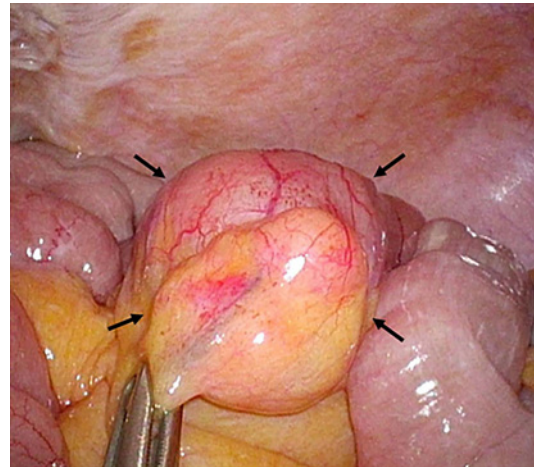


Fig. 2. Macroscopic appearance of the small bowel (arrow).

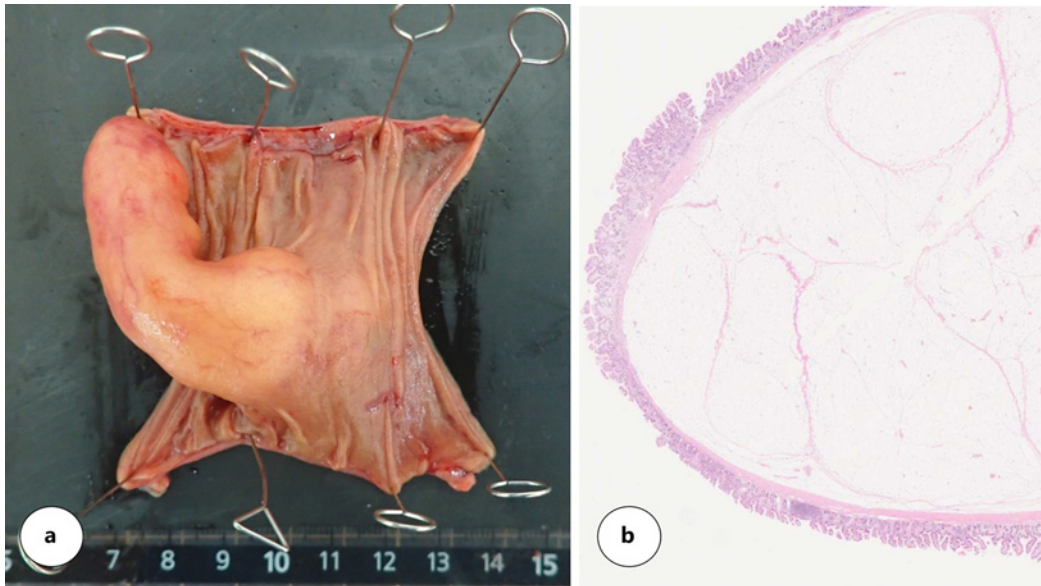


Fig. 3. a The resected specimen showing a 6 cm small columnar tumor. **b** Histopathological examination of the resected tumor showing a lipoma consisting of mature fat cells (hematoxylin and eosin staining, $\times 10$).

rate, such as the proximal small bowel [12]. CE can estimate the distance traveled in the small bowel, which is useful for confirming the location of the lesion during surgery and can narrow down the lesion site. Preoperative marking was unavailable here; however, CE provided the approximate location, helping locate the tumor laparoscopically. Even if CT does not show any results, surgical treatment should be considered if other modalities meet the requirements.

In symptomatic cases of small bowel lipoma, the standard treatment modality is surgical resection. If the lesion can be reached endoscopically, endoscopic resection could be a candidate modality for treatment. Since this patient was on hemodialysis and taking antiplatelet agents, she was at high risk of bleeding after endoscopic resection [13, 14]. The risk of bleeding associated with gastrointestinal surgery in patients receiving antiplatelet therapy is reported to be not significantly higher than in patients not receiving antiplatelet therapy or

who have interrupted antiplatelet therapy [15]. A surgical resection is considered if the lesion is difficult to treat with balloon-assisted endoscopy, has a high risk of rebleeding using antithrombotic therapy, and is symptomatic.

In conclusion, lipoma was the cause of hematochezia in this case. CE is the modality most likely to be successful in detecting small bowel lesions that cause small bowel bleeding. Successful treatment was attributed to appropriate preoperative testing, comorbidity assessment, and surgical planning. Specifically, CE enabled us to locate the lesion to some extent, further developing and implementing a less burdensome surgical plan. As a result, the patient had an uncomplicated postoperative course. We believe that surgical resection is a safe treatment option for the removal of small bowel lipomas even in patients who are on hemodialysis or are taking antiplatelet agents. The CARE Checklist has been completed by the authors for this case report, attached as online supplementary material (for all online suppl. material, see www.karger.com/doi/10.1159/000529340).

Statement of Ethics

This case report was reviewed and approved by the Institutional Review Board of Ichikawa Hospital, International University of Health and Welfare School of Medicine (Approval No. 18-Ic-089-2) and was conducted in accordance with the Declaration of Helsinki. Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

Conception, design, analysis, interpretation, writing, review, and revision of the manuscript: Shunsuke Yamagishi and Woodae Kang; acquisition of data: Shunsuke Yamagishi, Masataka Shindate, Yoritaka Matsuno, Masahiro Yoshida, and Mitsugu Kochi; study supervision: Woodae Kang, Masahiro Yoshida, and Mitsugu Kochi. Woodae Kang, Masataka Shindate, Yoritaka Matsuno, Masahiro Yoshida, and Mitsugu Kochi have read and approved the final manuscript.

Data Availability Statement

All data that support the findings of this study are included in this article. Further inquiries can be directed to the corresponding author.

References

- 1 Szold A, Katz LB, Lewis BS. Surgical approach to occult gastrointestinal bleeding. *Am J Surg.* 1992;163(1):90–3; discussion 92–3. [https://doi.org/10.1016/0002-9610\(92\)90258-s](https://doi.org/10.1016/0002-9610(92)90258-s)
- 2 Yang JY, Lee TC, Montez-Rath ME, Paik J, Chertow GM, Desai M, et al. Trends in acute nonvariceal upper gastrointestinal bleeding in dialysis patients. *J Am Soc Nephrol.* 2012;23(3):495–506. <https://doi.org/10.1681/ASN.2011070658>
- 3 Mayo CW, Pagtalunan RJ, Brown DJ. Lipoma of the alimentary tract. *Surgery.* 1963;53:598–603.
- 4 Ohmiya N. Management of obscure gastrointestinal bleeding: comparison of guidelines between Japan and other countries. *Dig Endosc.* 2020;32(2):204–18. <https://doi.org/10.1111/den.13554>
- 5 Tziatzios G, Gkolfakis P, Papanikolaou IS, Triantafyllou K. Antithrombotic treatment is associated with small-bowel video capsule endoscopy positive findings in obscure gastrointestinal bleeding: a systematic review and meta-analysis. *Dig Dis Sci.* 2019;64(1):15–24. <https://doi.org/10.1007/s10620-018-5292-0>
- 6 Hágendorn R, Farkas N, Vincze Á, Gyöngyi Z, Csupor D, Bajor J, et al. Chronic kidney disease severely deteriorates the outcome of gastrointestinal bleeding: a meta-analysis. *World J Gastroenterol.* 2017;23(47):8415–25. <https://doi.org/10.3748/wjg.v23.i47.8415>
- 7 Farkas N, Wong J, Bethel J, Monib S, Frampton A, Thomson S. A systematic review of symptomatic small bowel lipomas of the jejunum and ileum. *Ann Med Surg.* 2020;58:52–67. <https://doi.org/10.1016/j.amsu.2020.08.028>
- 8 Luo JC, Leu HB, Huang KW, Huang CC, Hou MC, Lin HC, et al. Incidence of bleeding from gastroduodenal ulcers in patients with end-stage renal disease receiving hemodialysis. *CMAJ (Can Med Assoc J).* 2011;183(18):E1345–51. <https://doi.org/10.1503/cmaj.110299>
- 9 Samouilidou EC, Grapsa EJ, Kakavas I, Lagouranis A, Agrogiannis B. Oxidative stress markers and C-reactive protein in end-stage renal failure patients on dialysis. *Int Urol Nephrol.* 2003;35(3):393–7. <https://doi.org/10.1023/b:urol.0000022846.83505.3f>
- 10 Kang JM, Kim N, Kim JH, Oh E, Lee BY, Lee BH, et al. Effect of aging on gastric mucosal defense mechanisms: ROS, apoptosis, angiogenesis, and sensory neurons. *Am J Physiol Gastrointest Liver Physiol.* 2010;299(5):G1147–53. <https://doi.org/10.1152/ajpgi.00218.2010>
- 11 García-Blázquez V, Vicente-Bártulos A, Olavarria-Delgado A, Plana MN, van der Winden D, Zamora J, et al. Accuracy of CT angiography in the diagnosis of acute gastrointestinal bleeding: systematic review and meta-analysis. *Eur Radiol.* 2013;23(5):1181–90. <https://doi.org/10.1007/s00330-012-2721-x>
- 12 Yamamoto H, Ogata H, Matsumoto T, Ohmiya N, Ohtsuka K, Watanabe K, et al. Clinical practice guideline for enteroscopy. *Dig Endosc.* 2017;29(5):519–46. <https://doi.org/10.1111/den.12883>
- 13 Numata N, Oka S, Tanaka S, Higashiyama M, Sanomura Y, Yoshida S, et al. Clinical outcomes of endoscopic submucosal dissection for early gastric cancer in patients with chronic kidney disease. *J Gastroenterol Hepatol.* 2013;28(10):1632–7. <https://doi.org/10.1111/jgh.12320>
- 14 Ling X, Lin R, Chen Y, Nie C, Sheng L, Liu J, et al. The risk of aspirin induced postoperative hemorrhage: a systematic review and meta-analysis. *Expert Rev Gastroenterol Hepatol.* 2022;16(10):981–92. <https://doi.org/10.1080/17474124.2022.2137489>
- 15 Fang X, Baillargeon JG, Jupiter DC. Continued antiplatelet therapy and risk of bleeding in gastrointestinal procedures: a systematic review. *J Am Coll Surg.* 2016;222(5):890–905.e11. <https://doi.org/10.1016/j.jamcollsurg.2016.01.053>