

CLINICAL VIGNETTE

Challenges of Managing Small Bowel Bleeding in a Community Hospital

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Case Presentation

A 45-year-old male presented to the hospital with intermittent hematochezia for one week. There was no associated abdominal pain, nausea or vomiting. He reported lightheadedness with two episodes of near syncope. Past medical history includes remote history of testicular cancer.

On admission the patient was afebrile, tachycardic to 110 bpm, with normal sitting BP with orthostatic changes. Physical examination was negative for abdominal tenderness. Rectal examination revealed dark, hemoccult positive stool. Laboratory studies included Hgb 5.0 g/dL (13.5-16.5 g/dL) with MCV 90 fL (82-98 fL), and creatinine 1.68 mg/dL (0.70-1.30 mg/dL). After resuscitation with fluids and blood products, he underwent esophagogastroduodenoscopy which was completely normal. The following day he underwent colonoscopy notable for old blood throughout the colon but no endoscopic evidence of diverticula, erythema, mass, ulcerations or angiodysplasia. Nuclear bleeding scan showed no tracer leak on initial imaging, but delayed imaging noted tracer in the proximal colon, suggesting that the patient had re-bled between the two sets of images. CT angiography did not show any active extravasation of contrast. The patient continued to have ongoing hematochezia and inappropriate response to blood transfusions. He required a total of 7 units of pRBCs during the hospitalization. Repeat colonoscopy was performed to rule out a missed lesion. Colonoscopy showed blood throughout the entire colon and in the terminal ileum (Figures 1, 2), with no clear source identified. Interventional radiology did not pursue embolization as the earlier CT angiogram was negative. The patient was transferred to the University Medical Center for small bowel evaluation. He underwent capsule endoscopy which demonstrated a linear ulcer with a possible visible vessel in the distal small bowel at a transit time of 59-73% (Figure 3). Transfer to another tertiary institution for possible double balloon enteroscopy was considered. Fortunately, the patient's bleeding stopped and his hemoglobin remained stable for several days. He was discharged from the hospital and is seeking outside consultation at Mayo Clinic for double balloon enteroscopy.

Discussion

We present this patient with severe gastrointestinal hemorrhage from a distal small bowel ulceration. While not necessarily unique, this case demonstrates significant challenges in

managing small bowel hemorrhages at both a community hospital and quaternary care centers.

As this patient had ongoing hematochezia after a negative upper endoscopy and colonoscopy, a small bowel source was suspected. Visualization of the small bowel can be achieved via capsule endoscopy, push enteroscopy, and deep (balloon) enteroscopy. Capsule endoscopy provides less invasive direct visualization of the small bowel. Traditionally tissue sampling and interventions cannot be performed if a lesion is found, however newer capsule technologies are being developed that may provide therapeutics. Capsule endoscopy has limited accessibility and unfortunately was available at our hospital.¹ Push enteroscopy utilizes a longer per oral endoscope/colonoscope and can allow for visualization (and intervention of) proximal jejunal lesions 25-80 cm from ligament of trietz, depending on the proceduralist and the patient's ability to tolerate. Studies have shown capsule endoscopy to have higher diagnostic yield than push and radiographic enteroscopy and have reduced the percentage of patients needing an alternative study.^{2,3} This was unavailable at the community hospital due to lack of the specific endoscope. After the patient was transferred to a quaternary hospital a capsule study confirmed the source of bleeding. Due to the distal bleeding location, double balloon enteroscopy was needed to directly visualize and intervene on the ileal ulcer. This technique was not available at the quaternary hospital, nor at Los Angeles hospitals.

CT angiography has limited sensitivity as the patient must be actively bleeding to detect contrast leakage.³ Embolizations performed by interventional radiology mechanically occlude the arterial blood supply to the bleeding site. These must be performed by experienced interventional radiologists because of the risk of bowel wall ischemia and infarction.⁴⁻⁶ In addition, the bleeding vessel must be accessible for selective catheterization. New interventional radiology guidelines support proceeding with embolization only in the setting of a positive CT angiogram, with concerns of morbidity/mortality from small bowel infarction with "blind" embolizations. Initial hemostasis is achieved in up to 95 percent of patients in whom angiographic therapy is technically feasible. Rebleeding is a common problem, occurring in up to 56 percent of patients.

Figures

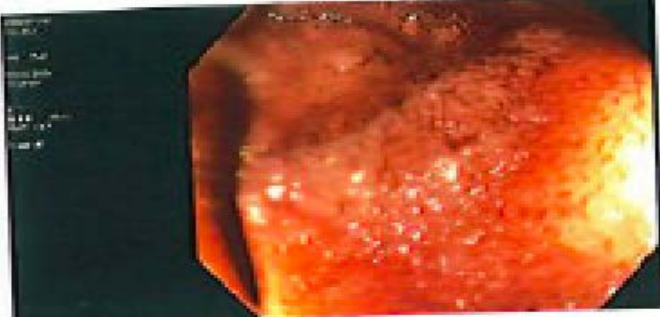


Figure 1: Endoscopic image showing blood entering the cecum from the terminal ileum.

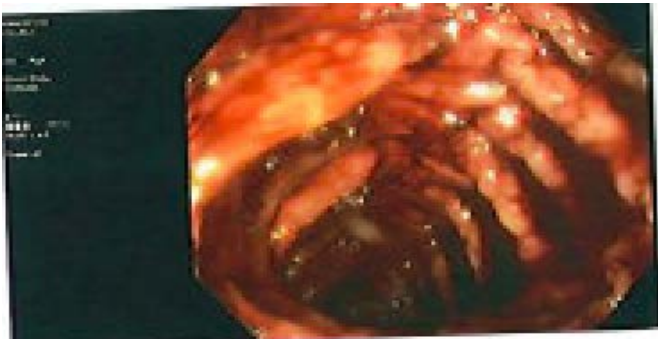


Figure 2: Endoscopic image showing blood in the descending colon.



Figure 3: Capsule endoscopy showing linear ulceration of the distal small bowel with a visible vessel.

Conclusion

Small bowel bleeding remains a rare but significant diagnostic and therapeutic challenge for both community and tertiary

institutions. Despite technological advances, there remains a lack of accessibility to interventions.

REFERENCES

1. **Ho AHY, Lui RN.** The current and future clinical applications of capsule endoscopy. *J Gastroenterol Hepatol.* 2024 Jan;39(1):28-33. doi: 10.1111/jgh.16490. Epub 2024 Jan 18. PMID: 38238541.
2. **de Leusse A, Vahedi K, Edery J, Tiah D, Fery-Lemonnier E, Cellier C, Bouhnik Y, Jian R.** Capsule endoscopy or push enteroscopy for first-line exploration of obscure gastrointestinal bleeding? *Gastroenterology.* 2007 Mar;132(3):855-62; quiz 1164-5. doi: 10.1053/j.gastro.2006.12.002. Epub 2006 Dec 3. PMID: 17324401.
3. **Leung WK, Ho SS, Suen BY, Lai LH, Yu S, Ng EK, Ng SS, Chiu PW, Sung JJ, Chan FK, Lau JY.** Capsule endoscopy or angiography in patients with acute overt obscure gastrointestinal bleeding: a prospective randomized study with long-term follow-up. *Am J Gastroenterol.* 2012 Sep;107(9):1370-6. doi: 10.1038/ajg.2012.212. Epub 2012 Jul 24. PMID: 22825363.
4. **Millward SF.** ACR Appropriateness Criteria on treatment of acute nonvariceal gastrointestinal tract bleeding. *J Am Coll Radiol.* 2008 Apr;5(4):550-4. doi: 10.1016/j.jacr.2008.01.010. PMID: 18359441.
5. **Loffroy R, Rao P, Ota S, De Lin M, Kwak BK, Geschwind JF.** Embolization of acute nonvariceal upper gastrointestinal hemorrhage resistant to endoscopic treatment: results and predictors of recurrent bleeding. *Cardiovasc Intervent Radiol.* 2010 Dec;33(6):1088-100. doi: 10.1007/s00270-010-9829-7. Epub 2010 Mar 16. PMID: 20232200.
6. **Kickuth R, Rattunde H, Gschossmann J, Inderbitzin D, Ludwig K, Triller J.** Acute lower gastrointestinal hemorrhage: minimally invasive management with microcatheter embolization. *J Vasc Interv Radiol.* 2008 Sep;19(9):1289-96.e2. doi: 10.1016/j.jvir.2008.06.003. Epub 2008 Jul 24. PMID: 18725091.