



Case Report

Case report of metastatic melanoma presenting as an unusual cause of gastrointestinal hemorrhage in an elderly gentleman

Chadley Froes^{*}, Nicolina Scibelli, Mary K. Carter

Department of Internal Medicine. Grand Strand Medical Center, Myrtle Beach, SC, 29572, USA

A B S T R A C T

Introduction: and Importance: Melanomas are capable of metastasizing to both regional and distant sites and are notably known to metastasize to the skin, lungs, brain, liver, bone, and gastrointestinal tract. Metastatic melanoma is infrequently diagnosed *in vivo*, and usually found only on *post-mortem* evaluation at autopsy. **Case Presentation:** Here we present the case of a 64-year-old male who originally presented with melena, fatigue, exertional dyspnea and one episode of near-syncope. He was found to have a hemoglobin of 5.4 gm/dL on initial presentation with largely unremarkable abdominal examination. CTAP demonstrated an area of circumferential small bowel wall thickening, concerning for malignancy. The patient underwent an EGD that was noted for mild gastric fundal erosions, which failed to explain his presenting symptoms. VCE was later performed following discharge to visualize the small bowel, which revealed two bleeding lesions within the small bowel. This was complicated by the device becoming lodged on the more proximal mass, and he was admitted again for push-enteroscopy and device retrieval. At the time of this admission, he continued to be symptomatic and was profoundly anemic with a hemoglobin of 4.7 gm/dL.

Clinical Discussion: EGD with push enteroscopy was performed, revealing two small masses in the mid-distal duodenum and jejunum, which were tattooed and biopsied. He underwent robotic-assisted laparoscopic small bowel resection of the affected portions of the small bowel, without complications. Surgical samples were consistent with melanoma, and further dermatologic examination revealed a suspicious lesion located on the patient's posterior right shoulder was biopsied and also consistent with melanoma, confirming the suspicion for metastatic process from primary cutaneous lesion.

Conclusions: We present this case as a rare diagnostic opportunity to observe metastatic melanoma of the small bowel, including a review of pertinent symptomatology and epidemiological data from previous literature. Our case serves as a reminder to consider metastatic melanoma as a rather uncommon cause of severe blood loss anemia, while also providing an overview of endoscopic modalities available for visualizing the small bowel in the management of suspected small bowel malignancy.

1. Introduction

Small bowel neoplasms are a relatively rare phenomenon, with most lesions representing metastasis from extraintestinal primary sites including the skin, lungs, and breasts. Epidemiological studies suggest that less than 2% of all small bowel malignancies originate from primary lesions within the GI tract, of which the vast majority (>70%) are gastrointestinal stromal tumors [1]. Primary small bowel melanoma is an exquisitely rare finding, believed to originate from melanoblastic cells arising from embryonic neural crest cells following migration to the distal ileum during embryogenesis [2]. Much like primary small intestinal neoplasms, secondary or metastatic lesions related to metastatic melanoma are also a rare finding, representing approximately 1%–3% of all metastases to the small bowel. Yet, this is still the most common cause of secondary malignancy within the small bowel [1,3]. This case report

has been reported in line with the SCARE Criteria [9].

2. Case Presentation

Date	Timeline of Events
4-Dec-21	Onset of fatigue, intermittent melena, anemia
14-Jan-21	Admitted for melena, anemia, syncope; EGD performed to rule out upper GI hemorrhage
3-Feb-21	Outpatient VCE performed, with failure to retrieve device (lodged on proximal mass)
5-Feb-21	Admitted for severe anemia, push enteroscopy performed with biopsy and device retrieval
8-Feb-21	Uncomplicated laparoscopic small bowel resection with side-to-side anastomosis performed

Abbreviations: MM, metastatic melanoma; EGD, esophago-gastro-duodenoscopy; GI, gastrointestinal; HGB, hemoglobin; MCV, mean corpuscular volume; PET, positron emission tomography; CT, computerized tomography; VCE, video capsule endoscopy; CTAP, computerized tomography of the abdomen and pelvis; RDW, red cell distribution width.

^{*} Corresponding author.

E-mail address: Chadley.Froes@hcahealthcare.com (C. Froes).

<https://doi.org/10.1016/j.amsu.2022.103920>

Received 7 April 2022; Received in revised form 31 May 2022; Accepted 2 June 2022

Available online 4 June 2022

2049-0801/© 2022 The Authors. Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

A 64-year-old male with a past medical history significant for hypertension and hyperlipidemia who self-presented to the emergency room of a local community hospital with concern for ongoing shortness of breath for nearly one week, including a single episode of near-syncope while at work on the day of his presentation. He endorsed constant shortness of breath with accompanied blurry vision prior to his near-syncope event. Of note, the patient also reported several episodes of melena over the past several weeks. He took aspirin daily for headaches and had a colonoscopy one year ago that was normal. He denied any history of smoking and drank alcohol only on rare occasion, with no recreational drug use. He had no known family history of malignancy or gastrointestinal disease. His home medications were once daily aspirin 81 mg, atorvastatin 20 mg and lisinopril 20 mg. Review of systems was positive only for mild unintentional weight loss and fatigue of two-month duration. He denied any fever, chills, nausea, vomiting, diarrhea, back pain, chest pain, cough, abdominal pain, calf pain, leg swelling, or numbness.

On presentation, his vitals were significant for a temperature of 98.2 °F, a heart rate of 91 bpm, a respiratory rate of 20/min, a blood pressure of 124/55 mmHg, and a pulse oximetry reading of 98% on room air. Physical examination revealed normoactive bowel sounds, and a soft, non-tender abdomen to palpation. The remainder of his physical exam was unremarkable. Labs were notable for a BUN of 33, a BUN/creatinine ratio of 24, a serum glucose of 141, a hemoglobin (HGB) of 5.4 g/dL, a median corpuscular volume (MCV) of 78.6, a red cell distribution width (RDW) of 17.5, and a D-dimer of 2070. A chest X-ray was ordered, which showed no acute cardiopulmonary disease. CT angiography was performed in the setting of his elevated D-dimer and was negative for any acute findings, including pulmonary embolism. Abdominopelvic CT imaging was also performed and was noted for non-obstructing, moderately prominent jejunal wall thickening, without significant surrounding inflammation or local adenopathy.

The gastroenterology physician on-call was contacted due to high suspicion for an acute gastrointestinal bleed and patient was placed on pantoprazole 40mg IV twice per day, transfused 3 units of packed red blood cells and scheduled for an EGD the following day. At this point, the differential diagnosis included various common causes of upper GI bleeding, such as peptic ulcer disease, arteriovenous malformations, and Dieulafoy lesions, especially in the setting of daily aspirin use and with a low suspicion for infectious causes. Given his mild weight loss, elevated D-dimer and the lack of logical explanation for his CT findings as a product of the aforementioned common causes of GI bleeding, inflammatory bowel disease and malignancy were also considered on the differential diagnosis, and he was scheduled for EGD the following morning for further diagnostic evaluation. Endoscopic findings included linear erosions in the fundus that were biopsied and a small hiatal hernia. The patient was started on omeprazole 20 mg daily for his gastric erosions with tentative plans for VCE as an outpatient, especially given his relatively unremarkable endoscopy, normal colonoscopy findings within the last year, and the lack of a clear explanation for his ongoing blood loss anemia and his nonspecific CT findings.

The patient subsequently underwent a VCE in the outpatient setting that was noted for two conspicuous lesions within the small bowel. Of note, approximately 1 hour into transit the capsule became lodged on the more proximal, revealing an oozing/bleeding mass (Fig. 1). Another second smaller mass was observed more distally in the small bowel with abnormal appearing mucosa (Fig. 2). With these findings, the gastroenterologist requested that the patient be admitted to the hospital to undergo push-enteroscopy with the goal of more optimally visualizing and obtaining tissue samples from both lesions. At this time, vitals were significant for a temperature of 98.2 °F, a heart rate of 91 bpm, a respiratory rate of 18/min, a blood pressure of 140/65 mmHg, and a pulse oximetry reading of 97% on room air. A complete blood count revealed a hemoglobin of 4.7 g/dL, and the patient was transfused 3 units of packed red blood cells and placed back on IV pantoprazole, with tentative plans for EGD with push enteroscopy the following morning. During the



Fig. 1. Proximal obstructive and hemorrhagic mass visualized on VCE.



Fig. 2. Distal mass with abnormal appearing luminal mucosa visualized on VCE.

endoscopy, the more proximal hemorrhagic mass as observed on VCE was noted to be in the mid-distal duodenum and a clip and tattoo were placed to mark the location. A second lesion noted to be in the jejunum was not bleeding but was again noted for abnormal appearing mucosa, concerning for possible malignancy.

Given the significant amount of blood loss from the proximal lesion and the lack of further endoscopic interventions, we discussed the possibility of surgical management including segmental resection of the affected portions of the small bowel. The general surgery teaching service was consulted to discuss surgical management with the patient,

who agreed to proceeding with surgical excision of the affected portions of the small bowel. The following day, a robot-assisted laparoscopic small bowel resection with stapled side-to-side anastomosis was performed by a local surgical attending with 3 years of surgical specialty training, assisted by his senior surgical resident. During the operation, the entirety of the small bowel was examined and two suspicious masses were identified. The first mass was noted to be approximately 10 cm distal to the tattoo, and the second mass was approximately 20 cm from the first. Additionally, a loop of the jejunum was found to be markedly inflamed and actively hemorrhagic. The portion of the small bowel containing the masses as well as surrounding perienteric lymph nodes were excised, and surgical samples were sent for histopathological analysis. No complications occurred in the patient's post-operative course.

Further history and physical examination were obtained from the patient following surgery, revealing a 3 cm dark, pigmented lesion on his right shoulder that he had noticed for several years (Fig. 3). The lesion itself was very concerning in appearance for melanoma, and punch biopsy of the lesion revealed a histopathological architecture that was diagnostic of primary cutaneous melanoma (Fig. 4). Surgical samples from both small bowel masses were consistent with melanoma, which had likely metastasized to the small bowel from primary skin lesion (Fig. 5). There was no evidence of malignancy in samples obtained from surrounding lymph nodes. The patient was ultimately scheduled for PET scan to rule out additional metastatic disease, although none were detected on the CT scans obtained during his initial hospitalization. He was referred to medical oncology for further discussion of all treatment options including chemotherapy, although he was unfortunately lost to follow up at the time of this publication.

3. Discussion

Small bowel malignancies are an intrinsically uncommon clinical entity, with primary or secondary intestinal melanomas accounting for an even smaller proportion of all small bowel neoplasms. Despite the relatively low incidence of both primary and secondary small bowel malignancies, contemporary literature suggests that metastatic cutaneous melanoma is the most common cause of secondary malignancies within the small bowel, followed closely by those derived from primary carcinomas of the breast, lung, and pancreas [3]. It is worth noting that cutaneous metastatic melanoma has a relatively high global prevalence, with a strong predilection for metastatic spread to the small bowel, particularly the duodenum and jejunum [1]. This is understood to occur primarily through hematogenous spread, likely as a product of extensive



Fig. 3. Photograph of pigmented 2 cm lesion on patient's right shoulder following punch biopsy.

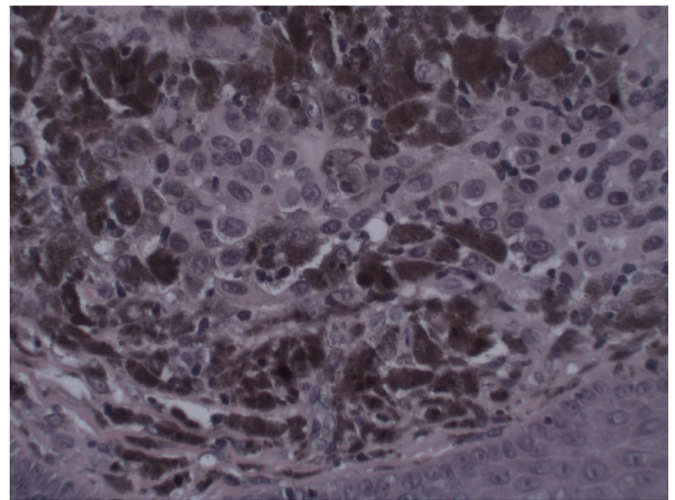


Fig. 4. Light microscopy at 40× magnification of punch biopsy from patient's shoulder lesion, revealing histologic architecture consistent with melanoma.

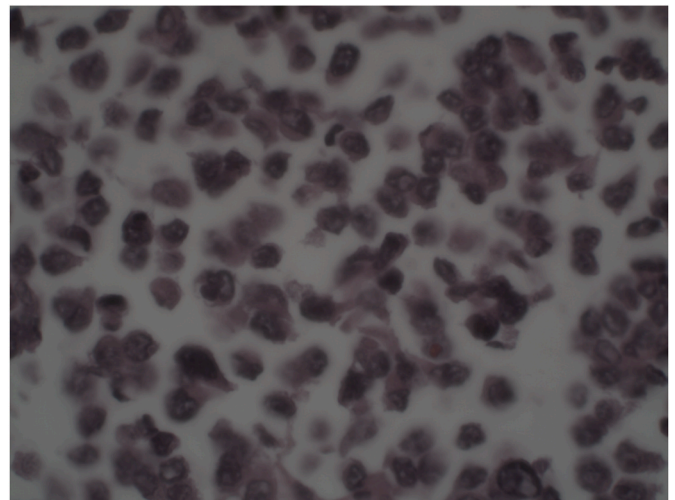


Fig. 5. Light microscopy of intraoperative biopsy of proximal small bowel lesion at 60× magnification, with pigmented cellular morphology consistent with melanoma.

vascular supply throughout the small intestines. More specifically, epidemiological data from multiple studies suggests small bowel involvement is observed in approximately 35%–70% of patients with known primary cutaneous metastatic melanoma [1,3]. Interestingly, despite such a strong preponderance for cutaneous melanoma to spread to the small bowel, less than 10% of metastatic lesions are detected *pre-mortem* [1]. As a result, there is a relative lack of large-scale clinical studies specifically focused on metastatic melanoma with small bowel involvement, and clinical literature on the topic is mostly comprised of various case reports or case series, with some smaller retrospective studies. One study involved a retrospective review of 32 patients admitted for surgical intervention for complications of melanoma, which was noted for an extremely low operative mortality rate of 3% and median post-operative survival of 6.2 months [8]. Of these, surgical intervention was indicated given GI hemorrhage and associated anemia, obstruction, or abdominal pain.

Studies suggest that approximately 1%–5% of patients with secondary small bowel MM ever present with gastrointestinal symptoms [2]. Milder symptoms tend to be nonspecific and can include abdominal pain or fullness, neither of which were predominant symptoms in our

case. Not unlike other GI malignancies, routine laboratory findings can reveal iron deficiency anemia, which may prompt further work up particularly when accompanied by unintentional weight loss or progression of gastrointestinal disturbance. With further development and tumor growth, vascular proliferation and ulceration gives rise to low velocity GI bleeds if not frank gastrointestinal hemorrhage, often without obvious findings on routine upper and lower endoscopic evaluation [4,5]. The emergence of GI hemorrhage tends to indicate progression towards more advanced disease, and often serves as a herald sign for the unconventional etiologies of bleeding such as malignancy, not unlike the case we present above. In this sense, hemorrhagic MM could be considered in the differential as a particularly rare cause of GI hemorrhage. Moreover, dermatologic examination findings can be easily overlooked in the context of anemia and gastrointestinal bleeding, and high index of suspicion is needed to make the diagnosis, especially given that metastatic lesions are so infrequently detected *in vivo*. Ultimately, severity is proportional to increases in size or number of intestinal lesions and may eventually lead to feared complications such as obstruction, intussusception, or intestinal perforation [6,7].

While our case certainly represents a rare diagnostic opportunity to observe such an uncommonly detected pathology, it also exemplifies the potential complexity of the diagnostic workup. From a GI perspective, video capsule endoscopy (VCE) is generally employed as the most appropriate testing modality for evaluation of possible small bowel malignancy, as indicated by negative findings on routine upper and endoscopy. VCE offers a convenient and minimally invasive imaging modality that can be readily performed in both inpatient and outpatient settings. VCE utilizes small capsule-shaped digital recording devices that collect sequential images of the luminal mucosa during passage through the full length of the GI tract. VCE is advantageous in that it facilitates visualization of portions of the bowel that may be difficult to visualize using traditional endoscopy, or even modern push enteroscopy [4]. In this case, VCE was successfully employed in demonstrating this patient's hemorrhagic small bowel tumors. However, VCE does introduce a small risk of obstruction and consequent perforation, especially in the context of luminal masses that can easily obstruct the passage of the device and require endoscopic device retrieval. VCE is also limited by the inability to target image collection, which is contingent upon somewhat random passage of the device through the GI tract. Consequently, VCE can be relatively labor intensive from a data processing standpoint, and inevitably requires additional surgical, image-guided, or enteroscopic methods for biopsy and intervention. Push enteroscopy may also provide some utility in diagnosis and management of suspected small bowel malignancy, although this can be of limited utility given the difficulty in visualizing more distal (i.e., jejunal) portions of the bowel. Push enteroscopy does offer the advantage of performing endoscopic biopsies, if not more advanced endoscopic interventions depending on operator ability. Despite their limitations, both can be utilized as was performed in this case to obtain an accurate visualization of pertinent pathological phenomena, providing the foundation for subsequent surgical management.

4. Conclusion

As evident by the case presented above and per review of contemporary literature, there is a clear and significant discrepancy between the relatively high incidence of small bowel involvement in metastatic cutaneous melanoma (per *post-mortem* studies), and the alarmingly low rate of clinical detection *in vivo*. Our diagnosis of metastatic melanoma was much less surprising upon recognition of a conspicuous, pigmented skin lesion on the patient's shoulder. However, given the low index of suspicion based on his initial presentation, his skin lesion was only brought to our attention during further discussions and examination following surgical intervention and in the context of the histopathologic findings from surgical samples. Although his presentation is certainly consistent with the typical progression of MM with small bowel

involvement, his diagnosis was complicated given that his only presenting symptoms were symptomatic anemia, mild weight loss along with relatively few lab abnormalities. Moreover, his dermatologic exam findings were initially overlooked, and only recognized as clinically pertinent around the time of surgery. Our case recognizes MM of the small bowel as a rare cause of gastrointestinal hemorrhage that may require a complex multidisciplinary work up and a high index of suspicion to make the diagnosis, including a detailed physical examination and dermatologic survey. The convoluted nature of the diagnostic work up combined with nonspecific presenting symptoms may explain why MM of the small bowel is so infrequently observed *in vivo*, despite its high predilection to metastasize to the small bowel. Moreover, our case demonstrates the role of VCE and small bowel enteroscopy in the diagnostic evaluation of suspected small bowel malignancy, including their role in guiding subsequent surgical intervention.

Sources of funding

This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.

Ethical approval

N/A.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Chadley Froes: Conceptualization, Writing - original draft, review & editing. Data curation.

Nicolina Scibelli: Data curation, Writing - review & editing.

Mary K. Carter: Data curation, Writing - review and editing.

All authors contributed to the final manuscript.

Guarantor

Chadley Froes.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Declaration of competing interest

No conflicts of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2022.103920>.

References

- [1] M. Lens, V. Bataille, Z. Krivokapic, Melanoma of the small intestine, *Lancet Oncol.* 10 (5) (2009) 516–521, [https://doi.org/10.1016/S1470-2045\(09\)70036-1](https://doi.org/10.1016/S1470-2045(09)70036-1). <https://www.ncbi.nlm.nih.gov/pubmed/19410196>.

- [2] A. Amar, J. Jougon, A. Edouard, P. Laban, J.P. Marry, G.P. Hillion, Primary malignant melanoma of the small intestine, *Gastroenterol. Clin. Biol.* 16 (1992) 365–367.
- [3] D. Kohoutova, D. Worku, H. Aziz, J. Teare, J. Weir, J. Larkin, Malignant melanoma of the gastrointestinal tract: symptoms, diagnosis, and current treatment options, *Cells* 10 (2) (2021) 327, <https://doi.org/10.3390/cells10020327>. Published 2021 Feb 5.
- [4] J.G. Van Heukelom, S.H. Gutnik, The utility of video capsule endoscopy (VCE) for the detection of small bowel bleeding arising from benign and malignant tumors: report of two cases, *S D Med* 64 (10) (2011).
- [5] S. Krüger, F. Noack, C. Blöchle, et al., Primary malignant melanoma of the small bowel: a case report and review of the literature, *Tumori* 91 (2005) 73–76, <https://doi.org/10.1177/030089160509100114>.
- [6] J. Rossaak, A. Watson, Medical image. Metastatic melanoma causing small bowel obstruction, *N. Z. Med. J.* 117 (2004) U1212.
- [7] J.F. Bilello, W.M. Peterson, Retrograde jejunojejunal intussusception secondary to metastatic melanoma, *Mayo Clin. Proc.* 80 (2005) 1098, <https://doi.org/10.4065/80.8.1098>.
- [8] J.K. Ihde, D.G. Coit, Melanoma metastatic to stomach, small bowel, or colon, *Am. J. Surg.* 162 (3) (1991).
- [9] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, for the SCARE Group, The SCARE 2020 guideline: updating consensus surgical CASE REport (SCARE) guidelines, *Int. J. Surg.* 84 (2020) 226–230.