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## An obscure cause of gastrointestinal bleeding: Renal cell carcinoma metastasis to the small bowel

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## ABSTRACT

Renal cell carcinoma metastasis to the small intestine is a rare condition. It usually results in gastrointestinal bleeding and it could happen many years after the diagnosis with renal cell cancer. Treatment includes surgery as well as targeted agents such as tyrosine kinases. We report here the case of an 82-year-old man with a past medical history of high-grade renal cell carcinoma and right nephrectomy 6 years earlier, who presented with recurrent episodes of syncope and black stools. He underwent esophagogastroduodenoscopy (EGD) and colonoscopy without evident source of bleeding. Video capsule endoscopy (VCE) showed three bleeding lesions in the jejunum and ileum. Push enteroscopy revealed a proximal jejunum bleeding mass that was suspicious for malignancy. Histopathology demonstrated poorly differentiated carcinoma. Given the patient's history of high-grade renal cell carcinoma, and similarity of histologic changes to the old renal cell cancer specimen, metastatic renal cell carcinoma was felt to be the responsible etiology.

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## 1. Introduction

Renal cell carcinoma (RCC) is the third commonest urological malignancy, secondary only to prostate and bladder cancer. Even after surgical resection of renal cell carcinoma, 25–50% of patients will develop some form of metastatic spread. These sites most commonly involve the lung, bone, liver, adrenals, and brain [1]. Only about 0.2–0.7% of RCC metastasize to the gastrointestinal tract (excluding the liver) [2]. Of all cases of upper gastrointestinal hemorrhage, small bowel neoplasms represent 1–4%, with renal cell carcinoma metastasis to the small bowel being an uncommon finding [3]. RCC has an unpredictable course and its clinical manifestations can present with a wide array of symptoms. Among its sites of metastases, the small bowel is rare and can present with gastrointestinal bleeding [4]. Cases of RCC metastasis have been reported with patients presenting with symptoms such as upper gastrointestinal bleeding, anemia, melena, fatigue, and early satiety [5]. Specifically concerning the small bowel, RCC can cause obstruction, bleeding and in rare cases perforation. A few cases of RCC metastasis to the small bowel inducing intussusception have

been reported [6]. Most patients with RCC metastasis to the small intestine had metastases in various other organs as well [6].

## 2. Case presentation

An 82-year-old Caucasian male presented to the emergency department with a chief complaint of syncope and black stools. He was found to be anemic with a hemoglobin level of 6.5 g/dl on admission. He had history of bio-prosthetic aortic valve replacement, mitral valve repair, atrial fibrillation, chronic obstructive pulmonary disease with cor pulmonale, congestive heart failure, chronic kidney disease (stage III) and a history of renal cell carcinoma. Of note, the patient was taking 8 mg/day of warfarin as well as an oral ferrous sulfate tablet daily. He was a previous smoker who quit 30 years ago. Six years prior to this admission he was diagnosed with renal cell carcinoma (RCC) with vascular invasion and lymph node metastasis, that was successfully treated with a right nephrectomy. A month earlier an antral nodular gastric ulcer was found, biopsied and cauterized. The lesion was found to be benign and *Helicobacter pylori* stain was negative. The patient was admitted and received two units of packed red blood cells and one unit of fresh frozen plasma, and he was started on pantoprazole intravenous infusion. After admission, esophagogastroduodenoscopy (EGD) was repeated which revealed nodular gastritis at the site of a previous ulcer on the lesser curvature of the antrum without active bleeding. That was injected with absolute ethanol and cauterized

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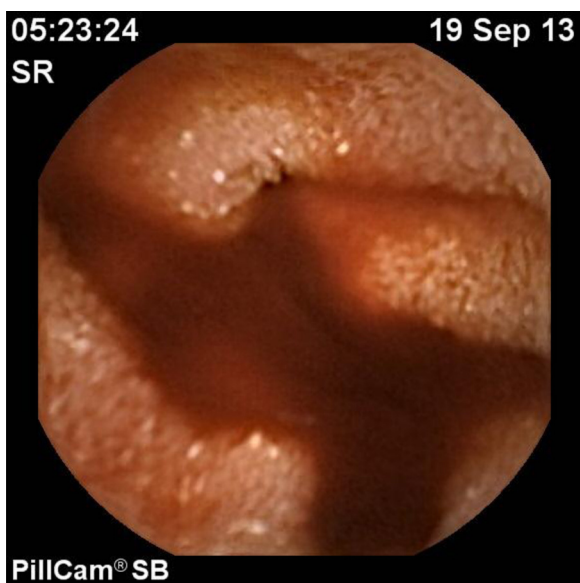


Fig. 1. Video capsule endoscopy showing bluish of blood in proximal jejunum.



Fig. 2. Push enteroscopy showing an irregular-shaped, raised bleeding mass in proximal jejunum.

again. Colonoscopy was obtained because of persistence of bleeding and revealed a 1.5 cm sessile polyp in the cecum and another 1.5 cm sessile polyp in the rectum, both of which were removed and found on biopsy to be tubulovillous adenomatous polyps.

A video capsule endoscopy (VCE) was obtained to determine the source of the obscure gastrointestinal bleeding. This revealed a bleeding area in the proximal jejunum (Fig. 1) and two other bleeding spots in the distal jejunum and proximal ileum as well. After the abnormal VCE, push enteroscopy was performed which identified a raised bleeding lesion in the proximal jejunum (Fig. 2). That was biopsied and histology showed a poorly differentiated malignant neoplasm (Fig. 3). Given the patient's history of high-grade renal cell carcinoma, and the similarity of histologic changes to the resected kidney mass in the past (Fig. 4), metastatic renal cell carcinoma was postulated as the cause of the small bowel lesions. Oncology consult was obtained and treatment modalities, including targeted agents such as tyrosine kinases, were discussed with patient and his family. Because of the patient's age and other comorbidities, including cardiac disease, he elected not to receive any treatment and to be discharged under palliative care. The patient declined further work-up, and a CT abdomen and chest as well

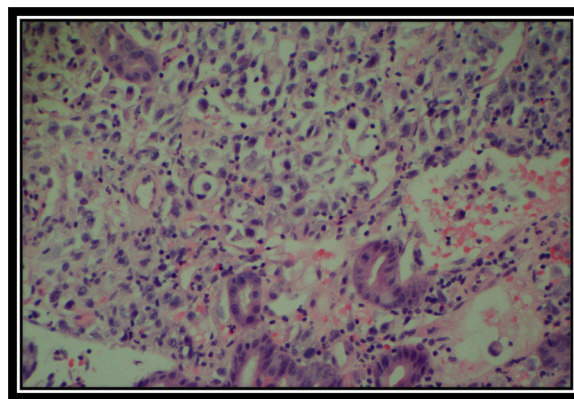


Fig. 3. Microscopic image (40 $\times$ ) of the small bowel lesion showing poorly differentiated carcinoma.

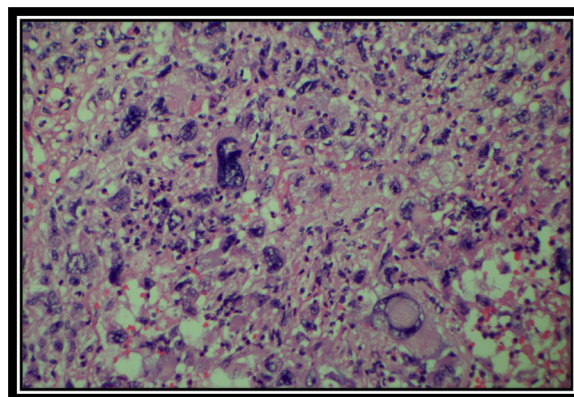


Fig. 4. Microscopic image (40 $\times$ ) of the resected kidney mass 6 years earlier, showing clear cell carcinoma.

as a bone scan were never performed to assess whether this was an isolated site of metastasis or part of the generalized metastatic disease.

### 3. Discussion

In one study of 118 cases of RCC that recurred post-nephrectomy, no metastasis to the small bowel was reported [6]. More recently it has been found that RCC metastases can present after nephrectomy is performed, with metastases reported up to 17.5 years post-nephrectomy. Usual investigatory methods for tumor suspicion in the small bowel, including barium follow-through and CT scan, have not shown to be very useful [7]. It has been noted that some patients with bleeding originating from the small bowel remain undiagnosed even after an upper endoscopy and a total colonoscopy are performed [7]. Capsule endoscopy and push or double balloon enteroscopy (DBE) may be necessary procedures in patients with gastrointestinal symptoms and a past oncological history of RCC [8]. Treatment options for RCC metastases include surgery as well as interventional therapy, which have been shown to increase the patient's survival. The tyrosine kinase inhibitor Sunitinib has also been shown to have survival benefits for patients with RCC metastasis [9]. New therapies that target the vascular-endothelial growth factor receptor (VEGFR) as well as the mTOR-signaling pathway have been used as a treatment for RCC metastasis with good results [10].

Renal cell carcinoma metastasis to the small bowel is a rare occurrence, especially in patients with a past surgical history of nephrectomy for RCC. However, cases have been reported years following nephrectomy. More common sites of RCC metastasis

include the lung, bone, liver, adrenals, and brain. If RCC metastases to the small bowel do occur, they usually present with obstruction, bleeding, or rarely perforation. If the initial tests including CT, EGD, and colonoscopy demonstrate negative results, it is recommended to perform VCE and DBE to identify the cause of the gastrointestinal bleed. The mainstay of treatment for RCC metastasis is surgery, although newer molecular-targeting agents to treat metastatic lesions from renal cell carcinoma are being explored. In conclusion we report a case of renal cell carcinoma metastasis to the small bowel in a patient presenting with episodes of syncope secondary to obscure gastrointestinal bleeding. This case report suggests that renal cell carcinoma could metastasize to the small bowel, although it's a rare phenomenon. It also shows that use of VCE and push enteroscopy are of beneficial value in the diagnosis of obscure GI bleeding.

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All authors declare that there is no conflict of interest relevant to this paper.

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#### Conflicts of interest

No conflicts of interest.

#### Ethical approval

None.

#### Consent

A verbal consent has been obtained, and the patient has agreed for the publication, reaching the patient may require some time.

#### Author contributions

Ala Abdel Jalil: case design and concept, reviewing literature, guarantor of the manuscript.

Manver Razick: reviewing manuscript.

Robyn Gorski: study design and concept, writing manuscript, reviewing literature, data collection.

Salah Abdel Jalil: writing manuscript, reviewing literature, data interpretation.

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