

Metastatic Renal Cell Carcinoma Presenting as a Bleeding Gastric Polyp

Muhammad F. Mubarak, MD,^{1,2} Ebubekir S. Daglilar, MD,³ Thom Smilari, MD,⁴ Arnab Ray, MD³

¹Department of Internal Medicine, Ochsner Clinic Foundation, New Orleans, LA ²Department of Internal Medicine, King Saud University, College of Medicine, Riyadh, Saudi Arabia ³Department of Gastroenterology and Hepatology, Ochsner Clinic Foundation, New Orleans, LA ⁴Department of Pathology, Ochsner Clinic Foundation, New Orleans, LA

Background: Renal cell carcinoma (RCC) is responsible for nearly 13,000 deaths in the United States every year, predominantly because of metastasis to other bodily organs. However, metastasis of RCC to the stomach occurs rarely; it presents as solitary or multiple polyps or as ulcers concerning for primary gastric carcinoma. Bleeding from metastasis to the stomach is a rare and underrecognized cause of gastrointestinal bleeding. We describe a case of gastrointestinal bleeding in an elderly female who was found to have a gastric polyp of RCC origin.

Case Report: An 83-year-old female presented to our hospital for evaluation of an acute right basal ganglia hemorrhage after falling at her nursing home. Her hospital course was notable for melanic stool and anemia. Upper endoscopy revealed a single 40-mm pedunculated polyp and active bleeding on the lesser curvature of the stomach. Polypectomy and clipping were performed. Pathology was consistent with metastatic clear cell RCC. The patient's family declined a referral to oncology for evaluation of the newly diagnosed malignancy and opted for hospice care.

Conclusion: This case illustrates the potential for metastatic RCC to involve the stomach and cause gastrointestinal bleeding and anemia. The case also illustrates the role of upper gastrointestinal endoscopy in diagnosing and treating metastatic causes of gastrointestinal bleeding.

Keywords: *Gastrointestinal hemorrhage, gastrointestinal neoplasms, intestinal polyps, neoplasm metastasis, renal cell carcinoma*

Address correspondence to Arnab Ray, MD, Department of Gastroenterology and Hepatology, Ochsner Clinic Foundation, 1514 Jefferson Hwy., New Orleans, LA 70121. Tel: (504) 842-4000. Email: array@ochsner.org

INTRODUCTION

Renal cell carcinoma (RCC) represents 3% of all adult malignancies.¹ The mean age at presentation is 50-70 years, with a male to female ratio of 2:1. Risk factors for developing RCC include older age; obesity; smoking; length of renal dialysis; asbestos exposure; cadmium; and some genetic syndromes, including von Hippel-Lindau syndrome, tuberous sclerosis, and familial clear cell carcinoma.² Tumor cells arise from the epithelium of the proximal tubules.

RCC is responsible for more than 13,000 deaths in the United States every year, predominantly because of metastasis to other bodily organs such as the brain, liver, lung, and bone.¹ RCC is also known to metastasize to the gastrointestinal tract. Metastasis to the stomach occurs rarely, but when it does, it presents as solitary or multiple polyps or as ulcers concerning for primary gastric carcinoma.¹ Metastasis to the stomach is proposed to occur through lymphatic infiltration, hematogenous seeding, peritoneal dissemination, or direct contiguous invasion.^{3,4}

We present a case of gastrointestinal bleeding in an elderly female who was found to have a gastric polyp of RCC origin.

CASE REPORT

An 83-year-old female with multiple comorbidities, including stroke with residual left-sided weakness and aphasia, advanced dementia, diverticular bleeding, and diverticulitis requiring partial colectomy and colostomy, was transferred to our hospital for evaluation of an acute right basal ganglia hemorrhage after she fell at her nursing home. No neurosurgical intervention was provided given her high risk, and antiplatelet therapy was withheld. The patient's hospital course was complicated by findings of anemia and melanic stool and blood clots in her ostomy bag. On physical examination, the patient was pale and generally ill-appearing. She had right eye ptosis, hypoxia, and tachycardia with regular rhythm but no murmurs. Her chest was clear to auscultation; her abdomen was nontender but notable for dark output in the ostomy bag. The patient's blood count was notable for a decrease in hemoglobin and hematocrit from 9.8 g/dL and 31% at presentation to 7.0 g/dL and 20% 5 days later. Chemistry panel was unremarkable, and the patient had a normal coagulation profile.

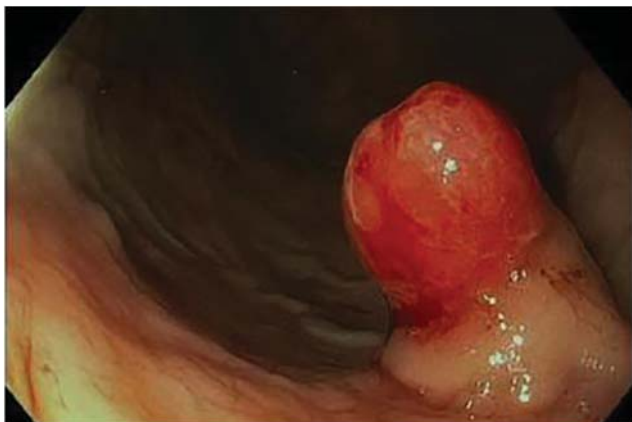


Figure 1. Endoscopy revealed a single 40-mm pedunculated polyp.

Upper endoscopy revealed a single 40-mm pedunculated polyp with active bleeding and stigmata of recent bleeding on the lesser curvature of the stomach (Figure 1). Polypectomy using the epinephrine injection-lift technique was followed by hot snare resection with complete removal (Figure 2). Two hemostatic clips were placed to prevent postpolypectomy bleeding (Figure 3).

Immunohistochemical staining with vimentin was positive for epithelial membrane antigen and CD10 (Figure 4). RCC antigen stain was focally positive. Pan-cytokeratin was negative, and CD68 staining showed scattered histiocytes. Histopathology and immunohistochemical staining were consistent with metastatic clear cell RCC.

The biopsy results were discussed with the patient's son and primary care physician. The patient's family was offered referral to oncology for evaluation and possible palliation of the newly diagnosed cancer, but they refused because of the patient's multiple medical comorbidities and opted for hospice care.

DISCUSSION

Metastasis of RCC to the stomach is a rare clinical finding. A case published in 2012 noted that only 19 cases had been reported in the literature.¹ One review reported that patients with gastric metastasis had an average age at presentation

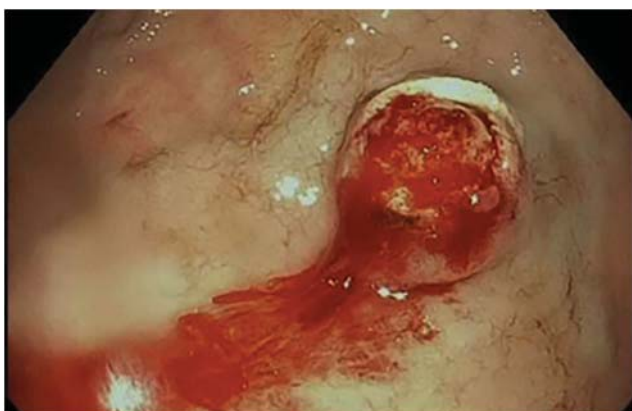


Figure 2. Polypectomy followed by hot snare resection resulted in complete removal.



Figure 3. Two hemostatic clips were placed to prevent post-polypectomy bleeding.

of 59.1 years (range 56–71 years) with metastasis occurring 16–78 months since the diagnosis of a primary malignancy.⁵ Metastasis from RCC usually lags 50–78 months from initial diagnosis of RCC.⁵ Metastatic RCC has been reported to present in the form of upper gastrointestinal bleeding (65%) and iron-deficiency anemia (35%).¹

Symptoms of gastric metastasis include dysphagia, epigastric pain, and vomiting. Although presentation can vary widely, a significant number of patients are diagnosed after presenting with gastrointestinal bleeding similar to our patient. Endoscopic findings of gastric metastasis are predominantly submucosal and solitary. Nevertheless, lesions can be polypoid (similar to our case) or ulcerated protruding lesions.^{6,7} Adequate biopsy sampling is of paramount importance given the lack of description of mucosal and submucosal pits in the endoscopic classification system.⁸ Treatment options for metastatic RCC include surgery and chemotherapy.³

Prognosis following a diagnosis of gastric metastasis is usually poor, with a median survival of 3 months and a range of 1–11 months, although solitary metastasis was correlated with a longer median survival in one case series study.^{7,9}

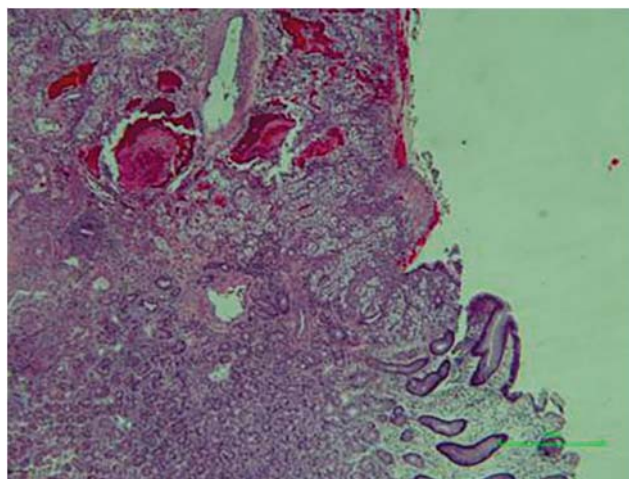


Figure 4. Immunohistochemical staining with vimentin was positive for epithelial membrane antigen and CD10.

Metastatic RCC is considered a metabolic disease through abnormal alteration of oxygen-sensing metabolic pathways that leads to upregulating hypoxia-inducible factor (HIF) pathways and HIF-related genes including platelet-derived growth factor (PDGF), vascular endothelial growth factor (VEGF), and epidermal growth factor.¹⁰ Evidence has shown that HIF1 α has a role in tumor suppression, while HIF2 α has an oncogenic role.¹¹ Gene expression and single nucleotide polymorphism (SNP) in patients with metastatic RCC have been studied to determine overall survival through treatment with the standard chemotherapy agent sunitinib.¹²⁻¹⁵ SNPs in VEGF and VEGF receptors have shown no statistically significant outcome other than VEGF receptor-1 SNP rs9582036 with increased overall survival.^{12,16} The expression of PDGF receptor beta in metastatic RCC allows for therapeutic targeting with sorafenib, another chemotherapeutic agent used to treat patients with metastatic RCC, and thus improves overall survival.¹⁷ Sunitinib malate is a tyrosine kinase inhibitor of angiogenic receptors commonly upregulated in metastatic RCC, including PDGF receptors, c-KIT, FMS-like tyrosine kinase receptor 3 (FLT3), VEGF receptor-1, and VEGF receptor-2. Sunitinib is currently the first-line therapy for patients with metastatic RCC, and since its introduction, has significantly improved overall survival and clinical outcomes.^{3,4,12-15,18}

CONCLUSION

This case highlights the potential for metastatic RCC involvement of the stomach, with resulting gastrointestinal bleeding and anemia. Gastric metastatic RCC usually lags primary tumor growth by years and generally entails a poor prognosis. This case also illustrates the role of upper gastrointestinal endoscopy in diagnosing and treating metastatic causes of upper gastrointestinal bleeding.

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