Endoscopic Removal of a Solitary Metastatic Renal Cell Carcinoma Lesion to the Stomach

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Introduction

Renal cell carcinoma (RCC) is an aggressive cancer that is potentially lethal and has a propensity for metastatic spread. In the USA, approximately 64,000 new cases and 14,000 deaths are attributed to renal cell carcinoma (RCC) each year [1]. Metastatic disease is found to occur in 17 % of patients. The most common anatomic locations for metastatic spread include the lungs (50–70 %), liver (30–40 %), bone and soft tissue (10 %), and brain (5 %) [2]. Metastatic invasion of renal cell carcinoma to the stomach is extremely rare and occurs in less than 1 % of cases. These lesions are highly vascular and carry a high likelihood of bleeding. Current treatment options for solitary RCC lesions to the stomach include chemotherapy, radiation, and surgical interventions (gastrectomy, antrectomy, etc.); however, these treatments have limited success, high side effects, and increased morbidity and mortality. Here, we present a complete endoscopic removal of a bleeding, solitary RCC mass lesion to the stomach in a patient who presented with melena and profound anemia.

Case Report

A 68-year-old male with history of stage 4 renal cell carcinoma status post left nephrectomy, ESRD on HD, and esophageal stricture status post Maloney dilation presented for left radical orchiectomy but was found to have anemia and melena. Metastatic renal cell carcinoma lesions were known to be present in the lungs, liver, adrenal glands, and pelvic bones. Treatment with sorafenib (Nexavar®) was initiated 5 months prior, and recent CT scans revealed good response to treatment with overall stable disease but a new left testicle mass lesion. Previous esophagogastroduodenoscopy (EGD) for dysphagia, 2 months prior to presentation, inadvertently discovered a non-bleeding mass in the body of the stomach with heaped edges and central umbilication (Fig. 1). Biopsies confirmed metastatic renal cell carcinoma to the stomach. There was no evidence of GI bleeding at that time.

Due to concern for a second primary cancer of the testicle, the patient was scheduled for left radical orchiectomy but found to have hemoglobin at 6 g/dL and melena. The surgery was postponed and gastroenterology was consulted. The patient’s hemoglobin was noted to be 6.7 g/dL on routine labs 4 days prior to presentation, requiring two-unit PRBC transfusions. He experienced a large, black, and tarry bowel movement 3 days prior to presentation but never sought medical attention. On the morning of admission, he experienced another episode of melena and admitted to fatigue and shortness of breath with exertion. Baseline Hgb=10 g/dL. He was given an additional two-unit PRBC transfusion. Vital signs were stable.

Esophagogastroduodenoscopy (EGD) revealed dark blood in the stomach and a bi-lobed gastric body lesion that appeared larger in size compared with endoscopic evaluation 2 months prior (Fig. 2). The mass was also noted to be mobile and pedunculated with a thick short stalk (Fig. 3). Light touch resulted in brisk, persistent oozing of blood (Fig. 4). Epinephrine-saline was injected into the stalk to control bleeding. A hexagonal snare was used to resect the lesion. The mucosal defect was closed using four endoclips placed in a Mohawk-like configuration (Fig. 5). A Roth net was used to retrieve the mass and was measured as 3×3.5 cm (Fig. 6). Prior to endoscopic resection of the gastric mass, the utility of
endoscopic ultrasound (EUS) was considered. However, EUS was deferred for the following reasons: (1) need for prompt treatment in the setting of an acute gastrointestinal bleed, (2) low risk of infiltration into the deeper layers of the gastric wall.
due to stalk-like morphology of the mass, and (3) epinephrine-
saline injection into the base of the lesion demonstrated a good
“lift” which is often accepted as a surrogate for formal EUS.

Fig. 3 Side view of the gastric mass, displaying pedunculated
morphology on a short stalk

Pathologic evaluation of the mass (Fig. 7) was consistent
with metastatic renal cell carcinoma, clear cell type that ex-
tends into the submucosa, with lymphovascular invasion. The

Fig. 4 Light touch resulted in brisk, persistent oozing of blood
from the solitary mass lesion
cauterized focus of metastatic tumor was less than 1 mm from inked deep margin. At 3-month follow-up, the patient had no further melena and has not required additional blood transfusions.

**Discussion**

Metastatic renal cell carcinoma is extremely vascular and has a very high propensity to bleed. Without intervention, patients
can exsanguinate and die. In this case report, we have demonstrated a novel technique for safe and effective treatment and removal of bleeding solitary RCC lesions to the stomach. Due to the pedunculated nature of the lesion, endoscopic removal was successfully performed using a snare. However, for sessile lesions, the use of saline lift injections may be performed prior to resection [3, 4]. After resection of the mass, the placement of endoclips in close succession along the length of the mucosal defect is performed for hemostasis and to prevent further bleeding. The endoclips approximate the edges of the mucosal defect and result in hemostasis and closure of the defect. In our case, the patient had known widespread malignant disease. However, if this were his only metastatic lesion present, our treatment may have been curative.

Another interesting aspect of our case is the new left testicle lesion with which our patient originally presented and was in need of requiring left radical orchiectomy for diagnosis and treatment. Despite the known background of metastatic renal cancer in this patient, the urologist chose to proceed with the orchiectomy considering the slim chance that the testicular tumor might be an independent primary and, thus, amenable to resection. After successful endoscopic treatment of his bleeding stomach lesion, the patient was stable enough for and underwent the testicular surgery. Pathology of the testicular mass confirmed metastatic spread of renal cell carcinoma (clear cell type), which again is a very rare site of metastatic spread from RCC. Metastatic lesions to the testicle range from 0.3 to 3.6% with the most frequent primary site being the prostate [5]. To our knowledge, only six cases of testicular metastases from RCC have been reported. Renal cell carcinoma has been associated with unpredictable patterns of spread and rare metastatic sites [6]. This unpredictability may be the result of complex lymphatic drainage. Ongoing research is needed to clearly define all patterns of metastases from renal cell carcinoma.

Our case documents (a) two rare sites of metastatic spread from renal cell carcinoma and (b) supports the use of endoscopic resection to safely and effectively remove solitary RCC metastatic lesions to the stomach and treat massive bleeding associated with these highly vascular lesions.

Conflict of Interest The authors of this case report declare that they do not have any conflict of interest.

References

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