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CASE REPORT | ENDOSCOPY

Hybrid Endoscopic Submucosal Dissection for Isolated Gastric Metastasis of Renal Cell Carcinoma

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ABSTRACT

Metastasis to the stomach is a rare occurrence, especially from renal cell carcinoma (RCC). We report a case of a 76-year-old man with a history of RCC, in remission for 11 years postnephrectomy, who presented with gastrointestinal symptoms, was found to have a 2 cm gastric mass confirmed as metastatic RCC. Endoscopic submucosal dissection was attempted, but due to the hypervascular nature of the mass, a hybrid endoscopic submucosal dissection was performed, achieving complete resection. Follow-up at 7 months showed no recurrence, highlighting the potential for endoscopic treatment options for isolated gastric metastasis, despite the lack of specific guidelines.

KEYWORDS: endoscopic submucosal dissection; gastric metastasis; renal cell carcinoma

INTRODUCTION

Metastasis to the stomach is a rare phenomenon, with an incidence of 0.2%–0.7% among gastric neoplastic diseases, most commonly originating from lung and breast cancers.[1-3] Renal cell carcinoma (RCC) is the most common malignancy of the kidneys, with clear cell carcinoma being the predominant subtype.[4] RCC is highly variable in its presentation, and even after nephrectomy, over 50% of patients may experience a distant recurrence.[5] While RCC is known for its high rate of metastasis, isolated gastric metastasis is particularly rare, occurring in only about 1% of cases, and may appear many years after a radical nephrectomy.[1,6–11] Although there are established guidelines and recommendations for managing primary gastric tumors, including when to consider endoscopic mucosal resection (EMR), endoscopic submucosal dissection (ESD), or surgical resection, there are no clear recommendations for endoscopic management of metastatic tumors to the stomach. In this report, we present a case of isolated gastric metastasis of RCC treated with hybrid ESD.[12]

CASE REPORT

A 76-year-old White man with a history of clear cell RCC, previously treated with a left nephrectomy 11 years ago and in remission, presented to an outside hospital with symptoms of dark stools, dizziness, and fatigue. Laboratory tests revealed a hemoglobin level of 7.5 g/dL (normal range 13.5–17.0), significantly lower than his previous baseline of 14 g/dL. An upper endoscopy with endosonography identified a 2 cm gastric mass in the proximal gastric body along the greater curvature, primarily involving the superficial and deep mucosa (Figures 1 and 2). A biopsy confirmed the mass as metastatic clear cell renal carcinoma.

Following this finding, a positron emission tomography scan showed uptake in the stomach, but there was no evidence of distant metastasis. The patient was referred to our center for ESD of the mass. During the procedure, ESD was initially attempted, but due to significant movement of the mass caused by heartbeats and the presence of significant vasculature in the dissection plane, likely due to the hypervascular nature of RCC, the planned ESD was converted to hybrid ESD. For en bloc resection, a circumferential incision

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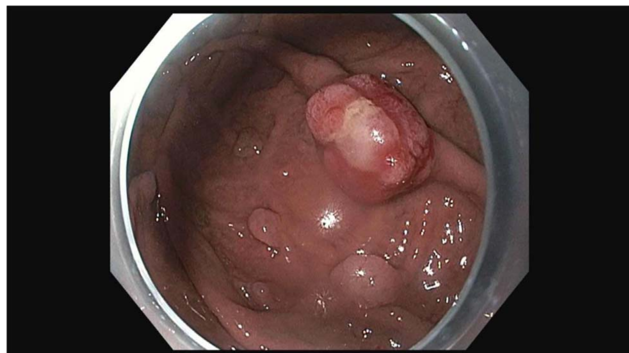

Figure 1. Malignant, ulcerated polypoid mass was found on anterior wall of the proximal body of the stomach.

around the lesion was completed and trimmed. Once an adequate amount of the incision was trimmed a 27 mm hexagonal snare was seated around the trimmed incision, and en bloc resection was successfully completed. The resection base was examined and appeared intact. To limit the risk of delayed adverse events, the base was approximated with endoscopic sutures, but as suturing was challenging, due to the proximal location of the resection base, 4 clips were placed to further ensure complete closure. Pathology revealed metastatic RCC with negative margins. A follow-up endoscopy 7 months later showed a healed post-ESD scar (Figure 3), with no evidence of malignancy, and the patient remained asymptomatic. His hemoglobin levels returned to his baseline of approximately 14 g/dL. Ongoing follow-up by both the oncology and gastroenterology teams has shown no hemoglobin drop, complications, or recurrence of the malignancy.

DISCUSSION

RCC has a known propensity to recur even after nephrectomy, but gastric metastasis—especially isolated gastric metastasis—is rare. A review found that gastric metastasis typically occurs years after the primary diagnosis, with an average interval of roughly 1 to 2 years.[2] Interestingly, only 31.8% of metastatic RCC gastric tumors are isolated.[13] While the occurrence of such metastasis is rare, the treatment approach in this case added another layer of complexity.

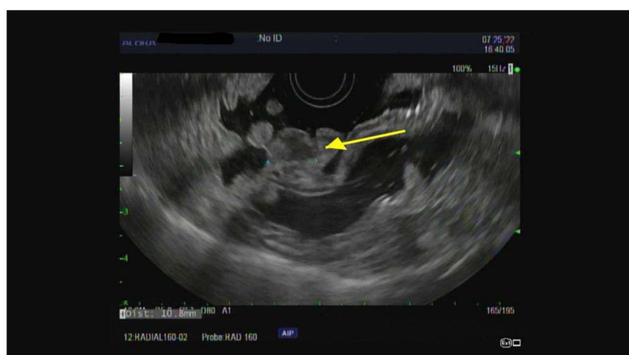

Figure 2. A hypoechoic oval mass (arrow) was identified endosonographically in the proximal body of the stomach.

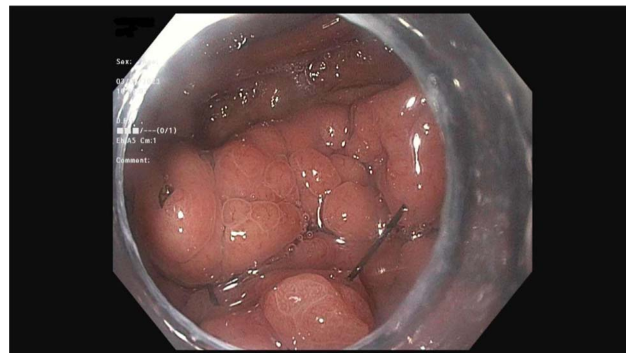

Figure 3. A 7 mm postendoscopic submucosal dissection scar was found on the anterior wall of the gastric body.

The American Society for Gastrointestinal Endoscopy provides clear recommendations for the treatment of primary gastric tumors.[14] However, there are no specific endoscopic guidelines for the management of isolated metastatic tumors to the stomach. Surgical resection remains the most commonly reported treatment of solitary metastatic tumors to the stomach. In one study, 37 patients with metastatic lesions to the stomach were described, with only one case of RCC as the primary tumor. Although 7 of these patients had lesions resembling primary early gastric cancer, none received endoscopic treatment.[15] There have been reports of 3 cases of solitary metastatic gastric mass arising from RCC that were treated with EMR, ESD, and endoscopic full-thickness resection but no reported cases of hybrid ESD.[16–18]

Hybrid ESD is an adapted method proposed as an alternative to traditional ESD. It involves performing a snare resection following an initial mucosal incision and partial submucosal dissection. This hybrid mix between EMR and ESD enhances the reliability of snaring and achieves a higher en bloc resection rate when compared with EMR, and at the same time, it overcomes the complexity of ESD with shorter procedure duration, fewer complications, and without difference in recurrence rates.[19,20]

Several factors can influence the treatment plan for solitary metastatic tumors to the stomach, including tumor size, appearance, location, depth of invasion, and the training and expertise of the treating team. In our case, the decision was based on endoscopic and endoscopic ultrasound findings, along with the specific characteristics of the mass. The patient showed significant improvement following resection and has had no recurrence approximately 1 year after the procedure.

Owing to the rarity of such cases, there are no large studies on the optimal approach to removing metastatic gastric RCC tumors. However, cases like this one highlight the need for further research and suggest that endoscopic procedures may be a viable alternative to surgical intervention in appropriate

clinical settings. A collaborative effort between oncologists, surgeons, and gastroenterologists is essential to ensure optimal care for these unusual cases.

DISCLOSURES

Author contributions: A. Alomari, M. Obri, A Chaudhary, I. Althunibat: drafting, revising, literature Review, writing; B. Aldroubi, MZ Khan: revising, literature review; C. Piraka and T. Zuchelli: revising, literature review, choosing images, final approval of the manuscript before submission. A. Alomari is the article guarantor.

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Informed consent was obtained for this case report.

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