

Case Report

Integrating traditional Chinese medicine with Western medicine in treating solitary gastric metastasis from renal cell carcinoma: a case report and literature review

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Abstract: The metastasis of renal cell carcinoma (RCC) to the stomach is a rare event, and in many cases, it indicates a poor prognosis. In this paper, we present the case of a 76-year-old female patient who underwent a right nephrectomy. Approximately two years later, the patient had an endoscopic resection for gastric metastasis and was subsequently treated with Chinese herbal medicines. Remarkably, this patient has remained tumor-free for over a decade. Furthermore, we conducted a comprehensive literature review of all documented cases involving individuals with RCC who developed isolated gastric metastasis. Surgical intervention and endoscopic treatment for gastric metastasis are both recommended, as evidence suggests they can extend overall survival.

Keywords: Renal cell carcinoma, solitary gastric metastasis, endoscopic treatment, traditional Chinese medicine, case report

Introduction

Renal cell carcinoma (RCC) is the most prevalent type of tumor found within the urological field [1]. This form of carcinoma accounts for approximately 2%-3% of all adult malignant tumors. For patients with renal masses less than 4 cm in size (48% of patients), partial nephrectomy can result in a 5-year cancer-specific survival of more than 94%. In cases of advanced or metastatic RCC, the median overall survival ranges from 46 to 56 months when treated with checkpoint inhibitors or the combination of immune checkpoint inhibitors with tyrosine kinase inhibitors [2]. It is particularly significant that about 25%-30% of individuals with RCC have metastases at the time of their initial diagnosis, which may include local invasion or distant metastasis [3]. The lungs, bones, and liver are the most common sites for metastatic RCC, although nearly every organ has the potential to be involved, including the thyroid, pancreas, skeletal muscle, skin, or other soft tissues. Nonetheless, gastric metastasis presenting from RCC is quite uncommon (only 0.2% to 0.7% of the literature) [4].

Herein, we present and discuss a case involving a rare instance of metachronous gastric metastasis from a primary renal cell carcinoma (RCC). A 76-year-old female patient developed gastric metastasis approximately two years after undergoing surgery for RCC. Following an endoscopic submucosal dissection, she chose to forgo Western medical treatments and pursued therapy exclusively through traditional Chinese medicine. To our knowledge, this constitutes the first reported case of managing solitary gastric metastasis from RCC by integrating traditional Chinese medicine with Western medical practices. During our clinical practice, we have encountered only this single case.

Case report

A 76-year-old female patient visited our hospital with painless gross hematuria that persisted for several days. Systemic examination results were normal. Contrast-enhanced computed tomography (CT) revealed a solitary tumor, approximately 4.4×3 cm in size, in the right kidney. A right nephrectomy was performed on June 9, 2013. Postoperative pathology identi-



Figure 1. Endoscopic findings. A 1.5 mass was found in the greater curvature of the gastric body.

fied the tumor as grade III clear cell carcinoma in the right kidney, with no evidence of cancer at the resection margins of the blood vessels and ureter. Immunohistochemical analysis showed positive (+) results for cytokeratin (CK) 10, vimentin (Vim), CK8, epidermal growth factor receptor (small amount), neuron-specific enolase, RCC, S100 protein (S100), CK, and carbonic anhydrase IX; with negative (-) results for CK7, P63, smooth muscle actin (SMA), uroplakin III, CD117, vascular endothelial growth factor, human melanoma black (HMB) 45, and periodic acid-schiff. Following her surgery, the patient declined chemotherapy and targeted therapy, opting instead for traditional Chinese medicine (TCM) as her treatment of choice. Upon examination, her tongue appeared red with a thin, white coating, and teeth imprints were visible along the edges. Guided by the TCM principles of nourishing the spleen and regulating qi, she was prescribed a TCM formula known as Erxian Decoction, which consists of *Epimedium brevicornum Maxim.*, *Phellodendron*, *Anemarrhena asphodeloides Bunge.*, and *Curculigo orchioides Gaertn.*

The patient experienced gastric discomfort, leading to a gastroscopic biopsy on April 1, 2015 (**Figure 1**), followed by an endoscopic submucosal dissection on April 28, 2015. The pathological examination of both procedures exhibited similar features: the tumor was organized in nests and encircled by numerous blood vessels, with tumor cells displaying marked atypia and abundant cytoplasm, which appeared either transparent or eosinophilic. The results of the immunohistochemical staining were as follows: CD10 (+), VIM (+), CK8 (weak

+, CK18 (focal +), HMB45 (-), CD34 (vascular +), CD117 (-), S100 (+), and SMA (-). These findings were consistent with the patient's medical history of metastatic clear-cell renal carcinoma. Notably, no lesions were detected at the resection margins.

Following surgery, the patient decided against chemotherapy or targeted therapy, opting instead for Traditional Chinese Medicine (TCM) treatment. Her tongue presented with a pale red color and a thin, white coating. In addition to the Erxian Decoction, the Sijunzi Decoction (comprising *Codonopsis Radix*, *Poria*, *Rhizoma Atractylodis Macrocephalae*, and *Glycyrrhizae Praeparata cum Melle Radix et Rhizoma*) was administered. TCM proved to be an indispensable component in this case, as it helped extend survival time, enhance the quality of life, and alleviate Qi deficiency syndrome. Over several months, the patient experienced a significant reduction in fatigue and an increase in appetite. The pallor of her tongue gradually improved, suggesting a better equilibrium of Qi and blood. Her overall well-being improved, and she was able to resume some daily activities with less discomfort. This case study underscores the potential advantages of incorporating TCM into conventional medical practices, providing a more comprehensive approach to patient care. To date, no metastasis has been detected during the follow-up examinations of this patient.

Systematic literature review

We conducted a literature review using the Medline electronic database via PubMed (2013-2024) with the following key terms: "renal cell carcinoma", and "stomach metastasis", 23 articles were included, "renal cell carcinoma" and "gastric metastasis", 62 articles were included. The RCC cases with solitary gastric metastases are summarized in **Table 1**.

We performed a literature review through PubMed for the period spanning from 2013 to 2024. Our search was guided by the following key terms: "renal cell carcinoma" and "stomach metastasis". A total of 23 articles were selected for inclusion. Additionally, we searched for articles using the terms "renal cell carcinoma" and "gastric metastasis", which yielded 62 articles for consideration. The cases of RCC with solitary gastric metastases are detailed in **Table 1**.

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Table 1. Summary of solitary gastric metastasis of RCC cases reported in the literature

<i>Author</i>	<i>Year</i>	<i>Age</i>	<i>Sex</i>	<i>Interval (years)</i>	<i>Treatment</i>	<i>Other sites of metastases</i>	<i>Outcomes (survival)</i>
García-Campelo [15]	2010	75	Male	3	Sunitinib malate	NO	At least 7 years
Jie Xua [16]	2011	60	Female	0.5	Endoscopic treatment	Multi-organ metastases	14 months
Richa Chibbar [17]	2013	69	Female	10	EMR	NO	At least 11 years
Greenwald D [18]	2014	62	Male	0	Partial gastrectomy	NO	At least 8-months
Rita [19]	2014	77	Male	2	Endoscopic treatment	NO	At least 2.3 years
Kumcu [20]	2014	59	Male	4	Partial gastrectomy	NO	ND
Jacqueline Forman [21]	2015	76	Female	7	ND	NO	ND
Akay [22]	2016	72	Male	20	Chemotherapy	ND	At least 22 years
Rika Yoshida [23]	2020	85	Female	15	Endoscopic treatment	NO	At least 17 years
Shigeki Koterazawa [24]	2020	70	Female	0	Endoscopic resection	NO	ND
Thomas Prudhomme [25]	2021	61	Male	7.7	Laparotomy	Hepatic hilum and hepatic artery	ND
Stuart Mcllwaine [26]	2022	80	Female	23	Did not further therapy	Pulmonary metastatic disease	ND
Wen-Guo Chen [27]	2022	65	Male	5	ESD	Multifocal metastases	ND
Kaori Yamashita [28]	2024	77	Male	6	Partial gastrectomy	NO	At least 7 years
Ahmad Alomari [29]	2024	76	Male	11	Hybrid endoscopic submucosal dissection	NO	At least 12 years

EMR: endoscopic mucosal resection; ND: not determined.

In our investigation, we identified 15 patients. The average age was 70.9 years, ranging from 59 to 85 years. A substantial majority of these cases involved male patients, accounting for 60%. The mean interval between the diagnosis of renal cell carcinoma (RCC) and the occurrence of metachronous gastric metastasis was 7.6 years, with a range of 0 to 23 years. Approximately half of the patients underwent surgical interventions for gastric metastasis as well as endoscopic treatment. More than half of the patients with recorded survival times have survived for over a year.

Discussion

Tumor-to-tumor metastasis was initially documented in 1902 by Berent and colleagues [5]. Renal cell carcinoma (RCC), a form of urological cancer, arises from the proximal tubular epithelium of the kidneys. The incidence of RCC exhibits a preference for males, with a male-to-female ratio of roughly 3:2. Patients typically present at an average age ranging from 50 to 70 years, and about 4% have a familial history of the disease [6]. It is important to note that surgical excision of both primary RCC and metastatic tumors constitutes the most efficacious treatment approach, whereas chemotherapy, radiation therapy, and hormonal therapies frequently prove ineffective in managing RCC [7].

Clear cell renal cell carcinoma (RCC) is the most prevalent form of kidney cancer. When contrasted with other histopathological variants of renal cancer, clear cell RCC is associated with worse survival outcomes [8]. Immunohistochemical analyses are essential in distinguishing this condition. For instance, CD10, a cell surface glycoprotein, is present in over 90% of renal clear-cell carcinomas. Furthermore, Vim, a mesenchymal marker, is expressed in the majority (87%-100%) of clear cell and papillary RCCs [9-11]. In the current case, both CD10 and Vim were detected in the primary and metastatic lesions. Nonetheless, the metastatic behavior of RCC is notoriously unpredictable. Metastases can disseminate via multiple routes, such as hematogenous and lymphogenous pathways, or by direct extension to the renal capsule, renal pelvis, and ureter. Of these, the hematogenous route is the most frequent mode of RCC metastasis, whereas metastases to the gastrointestinal tract are deemed uncommon.

The significance of endoscopy should be underscored in patients with a history of renal cell carcinoma and gastrointestinal symptoms. In cases where solitary gastric metastases are identified, surgical excision or endoscopic intervention is frequently the preferred treatment option, provided it is medically viable. This often results in a significant survival prolongation with a good quality of life if the metastasis was solitary. In this particular case, the patient underwent an endoscopic submucosal dissection to eliminate the metastatic lesions and had a long time survival. Regrettably, due to the extended duration, additional testing for metastasis involving the primary gene and RNA sequencing was not pursued.

Furthermore, the benefits experienced by this patient are attributed to Traditional Chinese Medicine (TCM). TCM is known to enhance immunity and alleviate the adverse effects associated with Western medical treatments. Research in the field of TCM, particularly concerning Renal Cell Carcinoma (RCC), has been initiated. The effectiveness of the Sijunzi decoction has been established in the treatment of gastric [12], colorectal [13], and lung cancers [14]. It is important to note that TCM places significant emphasis on the compatibility of its remedies; hence, the interactions between various medicinal ingredients are complex. As a result, personalized treatments are crucial for patients with advanced RCC and multiple metastases. Such therapeutic approaches not only alleviate symptoms but also offer a meaningful chance for disease-free survival and overall longevity.

In summary, we present a rare case of solitary gastric metastasis originating from renal cell carcinoma. Endoscopic submucosal dissection, as a minimally invasive therapeutic approach, has extended this patient's survival and enhanced their quality of life. Additionally, subsequent to the endoscopic surgery, the patient received traditional Chinese medicine treatment and has remained disease-free for a decade thus far.

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Disclosure of conflict of interest

None.

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