A Rare Presentation of Gastric Metastasis from Clear Cell Renal Carcinoma Najlae Demnati Sadki*, Hind Majd,Ouiame El Meliani, Mohammed Tareq Saoudi, Kaoutar Maadin, Lamiae Amaadour, Karima Oualla, Zin

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ABSTRACT:

Renal cell carcinoma (RCC) is the most prevalent form of kidney cancer and ranks as the 14th most common malignancy worldwide. At the time of diagnosis, around 30% of patients already present with metastatic disease. Bone and visceral metastases are associated with poor prognosis, whereas metastases to endocrine glands tend to have a more favorable outcome. Gastrointestinal metastases (GIMs) are uncommon, and their prognostic significance remains unclear.

This report describes an exceptionally rare case of gastric metastasis from clear cell renal cell carcinoma in a 57-year-old female patient managed at the Oncology Department of Hassan II University Hospital in Fes, the patient with no notable past medical history, had been under follow-up since 2016 at the Medical Oncology Department of Hassan II University Hospital in Fes for metastatic clear cell renal cell carcinoma (ccRCC). The primary tumor was located in the left kidney and was initially associated with cutaneous and paravertebral metastases. A systemic treatment with sunitinib, a tyrosine kinase inhibitor, was initiated, leading to stabilization of the disease over a prolonged period.

During routine follow-up, a contrast-enhanced computed tomography (CT) scan revealed a localized thickening of the gastric wall, raising suspicion for a secondary lesion. The patient was asymptomatic

upper gastrointestinal endoscopy was performed and identified a gastric lesion, which was biopsied. Histopathological analysis of the biopsied tissue initially suggested a diagnosis of primary gastric adenocarcinoma.

The patient underwent a gastrectomy. Final histopathological examination of the resected specimen, supported by immunohistochemistry, confirmed the diagnosis of gastric metastasis originating from the previously diagnosed clear cell renal cell carcinoma.

This case highlights the diagnostic challenge posed by rare metastatic sites of RCC, particularly when they mimic primary tumors of the affected organ. It also underscores the importance of integrating clinical, radiological, histological, and immunohistochemical data to establish an accurate diagnosis.

Keywords:

Clear Cell Renal Carcinoma, Gastric Metastasis, Sunitinib

Introduction:

Clear cell renal cell carcinoma (ccRCC) is the predominant histological subtype of RCC. Characterized by a rich vascular network and aggressive metastatic potential, approximately 25% to 30% of patients present with locally advanced or metastatic disease at diagnosis, while 20% to 40% experience distant metastases or local recurrence following nephrectomy. [1]

Gastrointestinal metastases from renal cell carcinoma are extremely rare, autopsy studies estimate their incidence to be between 0.2% and 0.7% [2,3]. A combined post-mortem and endoscopic series reports that only 0.06% to 4% of all malignant diseases give rise to gastrointestinal metastases.[4]

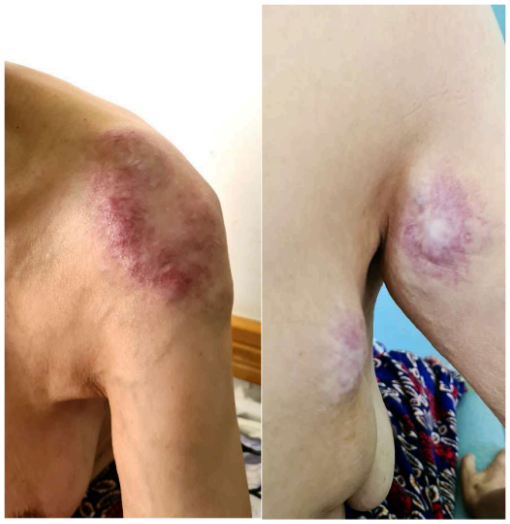
Case presentation:

We report the case of a 57-year-old female patient with no significant past medical history, who has been followed since 2016 for clear cell renal cell carcinoma (ccRCC).

Initially, she underwent an extended total nephrectomy. Histopathological examination revealed a moderately differentiated clear cell renal carcinoma invading the renal capsule and perirenal fat, classified as Fuhrman grade III. The ureteral margin was free of tumor.

At initial staging, she presented with cutaneous lesions located on the right arm and supraclavicular region. Surgical excision of these lesions was performed, and histopathology confirmed cutaneous metastases originating from clear cell renal carcinoma.

After a disease-free interval of two months, two additional cutaneous lesions appeared on both shoulders. These were excised privately, and histopathology again confirmed cutaneous metastases of renal clear cell carcinoma.



A new staging workup revealed a soft tissue mass adjacent to the 10th thoracic vertebra (D10). Given these findings, treatment with sunitinib was initiated on a schedule of four weeks on and two weeks off, starting in November 2016.

A follow-up contrast-enhanced thoraco-abdominopelvic CT scan in January 2017 showed complete regression of the paravertebral mass. Due to this favorable radiological and clinical response, sunitinib therapy was continued.

During routine follow-up, a contrast-enhanced computed tomography (CT) scan performed in November 2020, revealed a soft tissue in the pyloric region of the stomach, exhibiting both mural and exophytic growth, measuring 23 x 28 mm. This was associated with thickening of the gastric wall at this site, reaching a maximum thickness of 20 mm—findings that were absent on previous imaging, raising suspicion for a secondary lesion. At that time, the patient had no gastrointestinal symptoms, such as nausea, vomiting, abdominal pain, or bleeding.

Upper gastrointestinal endoscopy was performed, revealing an antrum-fundic mass. Biopsies from this lesion initially indicated a moderately differentiated gastric adenocarcinoma.

The case was discussed in a multidisciplinary tumor board to review radiological findings and determine the therapeutic approach. Resection was pursued due to isolated progression under sunitinib stability, aiming to delay tyrosine kinase inhibitor (TKI) resistance

On June 2021, the patient underwent a subtotal gastrectomy (four-fifths resection) with gastrojejunal anastomosis and lymph node dissection.

Histopathological analysis of the gastrectomy specimen revealed gastric metastases of clear cell carcinoma. This diagnosis was confirmed by immunohistochemical studies.

Discussion:

Renal cancer accounts for approximately 4% of all malignancies in men, ranking as the seventh most common cancer in men and the tenth in women worldwide [5]. Renal cell carcinomas (RCCs) represent about 80% of all primary renal malignancies, of which nearly 80% are classified as clear cell renal cell carcinoma (ccRCC) [6].

Metastatic dissemination of RCC typically occurs via the renal vein and/or the inferior vena cava [7]. The most common metastatic sites include the lungs (33%–72% of cases), regional lymph nodes (3%–35%), bones (21%–25%), liver (5%–10%), and brain (7%–13%) [8,9]. However, RCC—particularly the clear cell subtype—has the potential to metastasize to virtually any organ in the body.

Although uncommon, atypical metastatic sites have been reported, including the gastrointestinal tract, genital organs, retroperitoneum, skeletal muscle, skin, heart, breast, and various regions of the head and neck [10-12]. These rare presentations pose diagnostic challenges and often mimic primary tumors of the involved organs.

Renal cell carcinoma (RCC) can metastasize to any organ within the gastrointestinal tract, although certain sites are more frequently involved than others. The pancreas and spleen are§ among the most commonly affected digestive organs. Autopsy series report pancreatic involvement in approximately 3% to 12.9% of cases and splenic metastases in about 2% to 4.3% [13,14]. In contrast, secondary involvement of the colon, rectum, gallbladder, or stomach is far less common [10,12,15].

Metastatic tumors can be differentiated from primary gastric carcinomas by the lack of significant cellular atypia within the native gastric glands, which may appear compressed by the infiltrating

metastatic lesion. Immunohistochemistry plays a critical role in establishing the correct diagnosis. Several studies have demonstrated that renal cell carcinoma (RCC) typically expresses markers such as CD10, CD15, vimentin, epithelial membrane antigen (EMA), PAX-2, and E-cadherin, while being negative for CK7, CK20, and c-KIT. [16,17]

To date, no standardized therapeutic guidelines exist for the management of gastric metastases originating from renal cell carcinoma. Treatment approaches remain individualized and are primarily based on case reports and small case series.

According to Prudhomme T. et al. systemic review of the literature, when technically feasible and the patient is deemed surgically fit, resection—either surgical or endoscopic—should be considered to manage the lesion and potentially postpone the need for systemic therapy. Nonetheless, the risk of metastatic recurrence remains substantial and must be carefully integrated into the overall therapeutic strategy. [19]

Conclusion:

Although gastric metastases from clear cell renal cell carcinoma (ccRCC) are rare, they should remain part of the differential diagnosis in any patient with a history of ccRCC who presents with new gastrointestinal symptoms or suspicious radiologic findings. Early recognition of such atypical metastatic presentations is crucial, as it can influence both diagnostic strategy and therapeutic planning. This case highlights the importance of maintaining a high index of suspicion for unusual metastatic sites in long-term RCC follow-up and supports the value of a multidisciplinary approach in achieving an accurate diagnosis and appropriate management.

References:

1- Cohen HT, McGovern FJ. Renal-cell carcinoma. N Engl J Med 2005; 353: 2477-2490
2- PICCHIO M., PAIOLETTI A., SANTINI E., IACOPONI S., CORDAHI M.: Gastric metastasis from renal cell carcinoma fourteen years after radical nephrectomy. Acta Chir. Belg., 2000 ; 5 : 228-230.
3- SUAREZ FONSECAC., CARBALLIDO RODRIGUEZ J., GONZALEZ LAMAY., SOLAGALARZA I., RODRIGUEZ REINAG., SALAS ANTON C. : Gastric metastasis from renal cell carcinoma. Pathogenical hypothesis and literature revision. Actas Urol. Esp., 2004 ; 6 : 472-476

4- CHANG W.T., CHAI C.Y., LEE K.T. : Unusual upper gastrointestinal blee ding due to late metastasis from renal cell carcinoma : a case report. Kaoh siung. J. Med. Sci., 2004 ; 3 : 137-141.

5- Sung H, Ferlay J, Siegel RL, et al. *Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries.* CA Cancer J Clin. 2021;71(3):209-249.
6- Capitanio U, Montorsi F. *Renal cancer.* Lancet. 2016;387(10021):894-906.
7- Ljungberg B, et al. *European Association of Urology Guidelines on Renal Cell Carcinoma: 2022 Update.* Eur Urol. 2022;82(4):399–410.
8- Bianchi M, Sun M, Jeldres C, et al. *Distribution of metastatic sites in renal cell carcinoma: A population-based analysis.* Ann Oncol. 2012;23(4):973-980.
9- Shuch B, et al. *Understanding pathologic variants of renal cell carcinoma: Distilling therapeutic opportunities from biologic complexity.* Eur Urol. 2015;67(1):85–97.

10- Sountoulides P, Metaxa L, Cindolo L. *Atypical metastases of renal cell carcinoma: A review of case reports.* J Med Case Rep. 2011;5:429.
11- Patel SH, et al. *Unusual metastases from renal cell carcinoma: A review of the literature.* J Clin Oncol. 2018;36(6_suppl):531.
12- Piva F, et al. *Renal cell carcinoma metastases: Overview of unusual and atypical sites.* World J Clin Cases. 2021;9(2):349–364.
13- Adsay NV, Andea A, Basturk O, et al. Secondary tumors of the pancreas: an analysis of a surgical and autopsy database and review of the literature. Virchows Arch. 2004;444(6):527–535.
14- Sellner F, Tykalsky N, De Santis M, et al. Solitary and multiple isolated metastases of clear cell renal carcinoma to the pancreas: an indication for pancreatic surgery. Ann Surg Oncol. 2006;13(1):75–85.
15- Ballarin R, Spaggiari M, Cautero N, et al. Renal cell carcinoma metastases to the pancreas and to the gastrointestinal tract: A single-center experience. World J Gastroenterol. 2011;17(36):4076–4080.
16- Riviello C, Tanini I, Cipriani G, Pantaleo P, Nozzoli C, Poma A, Riccardo V, Valeri A. Unusual gastric and pancreatic metastatic renal cell carcinoma presentation 10 years after surgery and immunotherapy: A case report and a review of literature. World J Gastroenterol 2006; 12: 5234-5236 [PMID: 16937540 DOI: 10.3748/wjg.v12.i32.5234]
17- Yamamoto D, Hamada Y, Okazaki S, Kawakami K, Kanzaki S, Yamamoto C, Yamamoto M. Metastatic gastric tumor from renal cell carcinoma. Gastric Cancer 2009; 12: 170-173 [PMID: 19890698 DOI: 10.1007/s10120-009-0519-6]
18- Chen, Wen-guo et al. "Gastric metastasis presenting as submucosa tumors from renal cell carcinoma: A case report." *World Journal of Clinical Cases* 10 (2022): 9805 - 9813.
19- Prudhomme T, Maulat C, Péré G, Mokrane FZ, Soulié M, Muscari F. Are gastric metastases of renal cell carcinoma really rare? A case report and systematic review of the literature. *Int J Surg Case Rep.* 2021;82:105867. doi:10.1016/j.ijscr.2021.105867

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