Urology Case Reports 16 (2018) 6–8

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: www.elsevier.com/locate/eucr

Rapid recurrence and radiographic progression of sarcomatoid renal cell carcinoma

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ARTICLE INFO

Article history:
Received 11 August 2017
Received in revised form
8 September 2017
Accepted 26 September 2017
Available online 5 October 2017

Keywords:
Renal cell carcinoma
Sarcomatoid
Variant histology

ABSTRACT

Sarcomatoid renal cell carcinoma (sRCC) is an aggressive variant of renal cell carcinoma (RCC) that has a significantly lower overall survival. Even after prompt surgical extirpation, this histologic variant progresses rapidly. We present a case of an early recurrence and rapid progression of sRCC despite successful radical resection.

1. Introduction

Renal cell carcinoma (RCC) is the most prevalent kidney cancer and approximately 14,000 patients will succumb to this disease each year.[1] Sarcomatoid renal cell carcinoma (sRCC) is rare, with an incidence of 4–32% based on contemporary studies, and is a potentially fatal differentiation of RCC.[2] This diagnosis is significant because sRCC conveys a worse survival compared to other RCC subtypes. The overall survival (OS) for patients with sRCC can be as little as 4 months.[3] We present a case of sRCC that recurred rapidly in the nephrectomy bed despite negative margins in the pathology specimen.

2. Case presentation

A seventy-two year old female with a history of gastroesophageal reflux disease and osteoarthritis presented to her primary physician with left abdominal pain. She was found to have a large left renal mass and was subsequently referred to urology for management. The renal mass measured 14 cm (Fig. 1). The extent of disease workup, which included bone scan and chest x-ray, were negative.

She underwent a left radical nephrectomy via a thoracoabdominal approach. Final pathology demonstrated a 14.3 cm RCC with sarcomatoid differentiation with negative surgical margins (Fig. 2).

On postoperative day 46, the patient presented to the emergency room with severe left sided flank pain, characteristic of her presentation preoperatively. Her exam was unremarkable for signs concerning for wound complications or gastrointestinal pathology. Serologic testing was unremarkable for anemia, inflammation, or electrolyte abnormalities. Computed tomography demonstrated a 10.6 cm mass which was indeterminate for tumor or organized hematoma. An MRI was performed showing that the mass was indeed solid and consistent with local tumor recurrence (Fig. 3). A core needle biopsy confirmed the diagnosis of recurrent sRCC. Oncology was consulted for her rapidly recurrent cancer. Additional molecular testing was perform to identify immunotherapy targets however none was found.

Despite adjuvant therapy with gemcitabine and sunitinib, the cancer progressed rapidly with an average growth rate of 0.3 mm per day during her hospital stay to a maximum 21.5 cm on postoperative day 80 as demonstrated on serial axial imaging studies (Table 1). The family elected to pursue comfort measures given her poor response to treatment. She was discharged to home hospice care and succumbed to her cancer on post op day 114.

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https://doi.org/10.1016/j.eucr.2017.09.018

Abbreviations

RCC	renal cell carcinoma
sRCC	sarcomatoid renal cell carcinoma
OS	overall survival
cm	centimeter

3. Discussion

In summary, a seventy-two year old female underwent a left radical nephrectomy for a 14 cm renal cell carcinoma with sarcomatoid features which rapidly recurred in just 46 days. Despite an oncologically successful operation, the tumor recurred because of its high potential to seed the abdominal cavity. A recent series examined radiologic and pathologic features of abdominal seeding in patients with RCC.[4] In 10 years, they found 25 cases of abdominal seeding in 2561 pathologically confirmed RCC cases. Despite this small cohort, nearly one-third of these patients had sRCC, a rather high proportion given the fact that abdominal seeding is an uncommon event in conventional RCC. Of note, only one patient had a positive surgical margin. In a recent series of patients with sRCC,

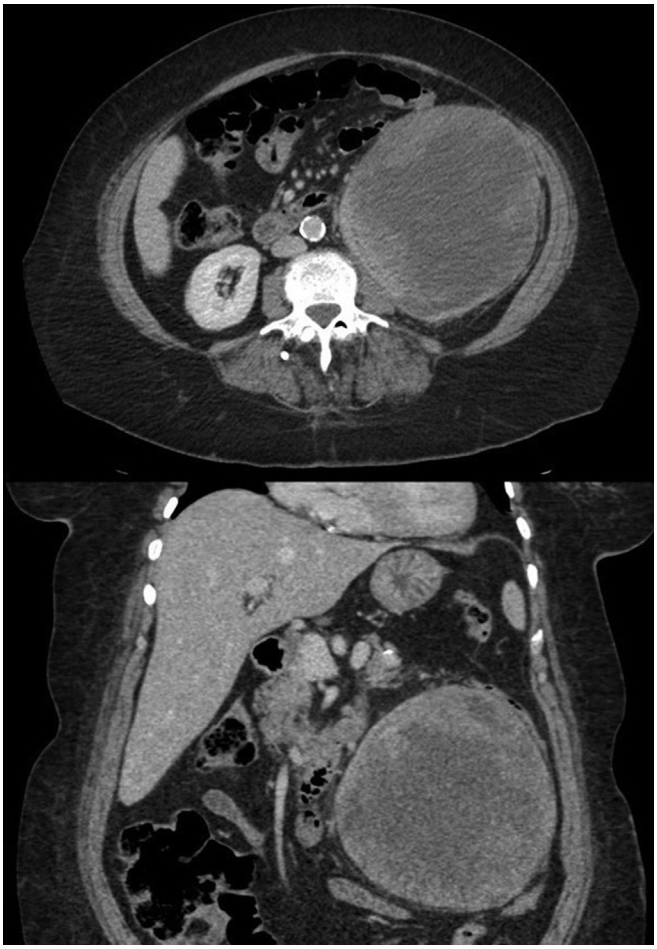

Fig. 1. Preoperative CT abdomen and pelvis with contrast. A 14 cm enhancing left renal mass. *Top* axial view, *Bottom* coronal view.

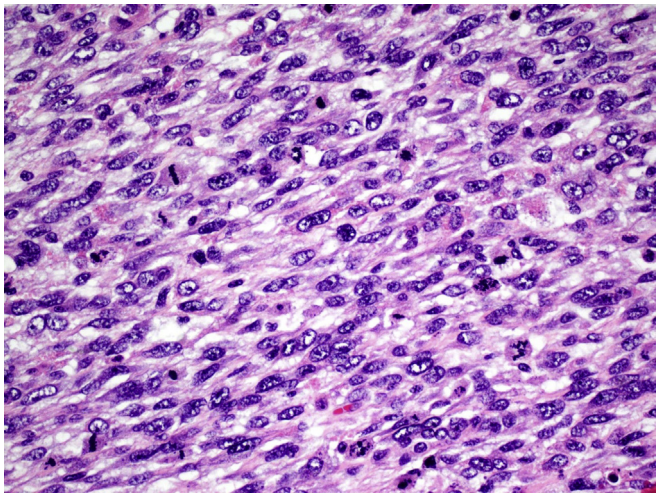

Fig. 2. Histologic slide from the resected renal mass. Sarcomatoid component with pleomorphic spindle cells with numerous mitotic figures is seen in this specimen.

Keskin et al. reported clinical findings similar to our case with pain being the most common presenting symptom (52.3%) and large tumor size at presentation (median = 11 cm, range 1.8–27). The aggressive nature of sRCC was also seen in this series with 30.1% developing metastases following radical nephrectomy. Of 199 patients, Keskin et al. reported 167 succumbed with median OS being 16.5 months (94% at six months, 67% at 12 months, 38% at two years, 14% at five years).[3] Chemotherapy did not improve OS in their cohort however, there was a trend towards improved survival in the era of targeted therapy. Recently, a phase III randomized, double-blind, placebo controlled trial with adjuvant sunitinib was reported by Ravaud and colleagues.[5] Although this study did not examine sarcomatoid differentiated tumors specifically, the cohort involved patients with high risk clear cell carcinoma. 309 patients were assigned to sunitinib and 306 patients received placebo—in the sunitinib group, the median disease-free survival was 6.8 years versus placebo which was 5.6 years.[5] Sunitinib increased overall survival compared to placebo by one year; however, this was not statistically significant. We hope that advancements in targeted

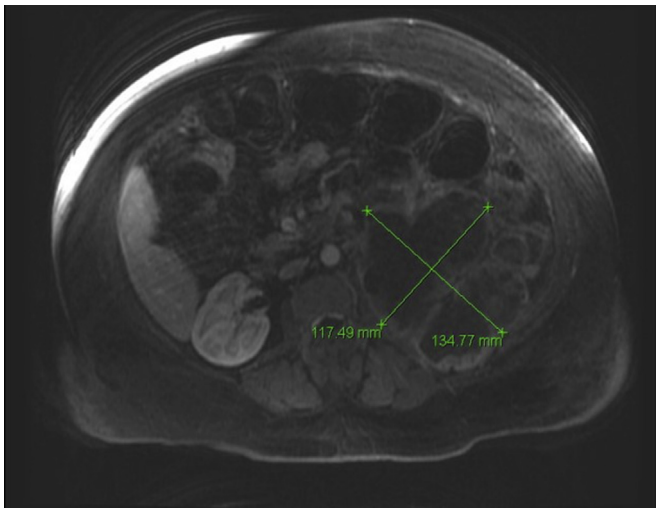

Fig. 3. MRI abdomen with contrasting. Tumor recurrence is seen within the left renal fossa measuring almost the same size as the original tumor.

Table 1
Growth kinetics of the renal mass.

Post-operative Day	Size (cm)
0 – operative specimen	14.3
46	10.6
51	13.5
56	14.6
80	21.5

therapies will be made in order to improve outcomes of patients with this devastating variant of RCC.

4. Conclusion

RCC with sarcomatoid differentiation is a rapidly progressive form of kidney cancer that requires prompt intervention. This malignancy is humbling as cure is not rendered even with optimal surgical resection.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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