

## Renal cell carcinoma revealed by sternal tumefaction: A rare case report and literature review

Mohamed Irzi<sup>\*</sup>, Tarik Mhanna, Mohammed Aynaou, Abdelghani Ouraghi, Mhammedi Wassim Alaoui, Ali Barki

Department of Urology, Mohammed IV University Medical Center, Mohammed the First University Oujda, Morocco

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### ABSTRACT

Usual location of metastasis are in renal cell carcinoma (RCC) the lung, liver, bone, adrenal and brain. Here we report on an unusual case of a 76-year-old male with a solitary sternal metastasis as an initial presentation of clear-cell RCC.

The management of metastatic kidney cancer has been disrupted over the last decade by the emergence of new treatments and the progress of surgery and ablative techniques.

the Carmenta study suggests that sunitinib alone is not inferior to the NCR followed by sunitinib, the patient has therefore been transferred to oncology for medical treatment (targeted therapy).

### Introduction

Kidney cancer is the third cancer of the device urogenital in order of frequency and represents 3% of solid cancers for adults. At the time of diagnosis, 10%–40% of patients with of kidney cancer are metastatic.<sup>1</sup>

Bone metastases is revealed by several signs depending on the location of metastases, but solitary sternal metastasis of RCC is a rare medical condition.

The management of metastatic patients is also personalized and different prognostic groups have been established to better tailor treatment to severity of pathology. Heng et al. identified three groups prognosis from 6 criteria<sup>1</sup>: hemoglobin, calcemia, the delay between diagnosis and the start of treatment, the Karnofsky index (general condition of the patient), the neutrophil count and platelet count.

### Patient and observation

A 76-year-old patient, without a personal medical history. was admitted to the emergency for chest pain for 2 months, and his general state deteriorated drastically. On clinical examination, there was a painful hard mass in the upper third of the sternum, without any other symptoms. Blood test revealed a hypocalcemia and anemia. The other paraclinical exams were without particularity namely the electrocardiogram.

The patient was admitted to internal medicine ward for suspicion of

myeloma. During the exploration a spinal biopsy was performed, and it came normal.

Computed tomography of the chest revealed heterogeneous mass (50mm\*34mm) of the upper third of the sternum, in contact with the pericardium, with no lung or lymph nodes lesions (Fig. 1). A biopsy of the sternal mass was performed, and pathological examination revealed a possible clear cell renal cell carcinoma(ccRCC) metastasis (Fig. 2).

Contrast-enhanced CT of the abdomen was realized and showed 5 cm bilateral renal tumors, on the right, and a 2cm one on the left (Fig. 3).

A pluridisciplinary consultation meeting referred the patient to the oncology center for targeted therapy.

After 18 months of surveillance, the sternal mass disappeared, and no secondary tumor localization was apparent.

### Discussion

Kidney cancer is the third cancer of the device urogenital in order of frequency and represents 3% of solid cancers of the adult. During the last 20 years, the incidence of kidney cancer has increased, in part due to the proliferation of imaging tests leading to accidental discoveries of kidney tumors, but probably also because of unknown environmental factors.<sup>1</sup> Preferential locations metastasis in RCC are the lung, liver, bone, adrenal, and brain. They can, however, reach any other organ. But solitary bone metastasis is very rare; and was reported in 5% of cases.<sup>2</sup>

Bone metastases are very destructive and responsible for

<sup>\*</sup> Corresponding author.

E-mail address: [irziirzi1992@gmail.com](mailto:irziirzi1992@gmail.com) (M. Irzi).

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Fig. 1. Computed tomography of the chest. A solid mass tumor in the sternum.

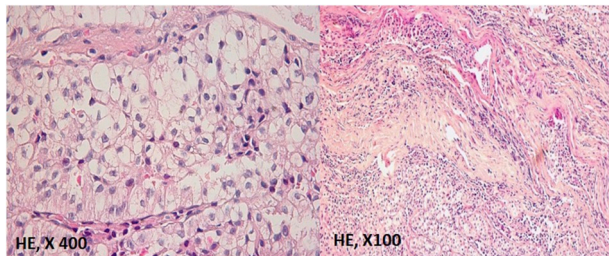


Fig. 2. Microphotography showing a carcinomatous proliferation made of clear cells.



Fig. 3. Computed tomography of the abdomen. A solid bilateral tumor.

pathological fractures, spinal compression, hypercalcemia. Patients with

bone metastases of RCC had a poor prognosis, and the mortality rate was more than 50% within the first year.<sup>3</sup>

Patients with solitary bone metastases had a better survival chance compared to those with multiple metastases. In patients younger than 65 years, there was an absence of pathologic fractures, and tumor-free resection margins predicted higher survival after surgical treatment.<sup>4</sup> But our patient is over 65 years old with comorbidities. After surgical treatment, in some studies, the survival rate was 58.4% at one year and 11.9% at 5 years.<sup>4</sup>

The management of metastatic renal cell carcinoma has been disrupted over the last decade by the emergence ANTI-VEGF and immunotherapy. These molecules have transformed the prognosis of kidney cancer, with a median survival that went from 11 to 30 months after the arrival of these molecules.<sup>5</sup>

The CARMENA study, a multicenter French study who included 450 randomized patients between nephrectomy plus sunitinib versus sunitinib alone, and overall survival was 18.4 months versus 13.9 months respectively. The Carmena study suggests that sunitinib alone is not inferior to the NCR, followed by sunitinib.<sup>5</sup> our patient is therefore transferred to oncology department for medical treatment (targeted therapy).

## Conclusion

In accordance with Carmena study, this clinical case illustrates that targeted therapy is a relevant treatment option in patients of poor general health conditions with a single RCC metastasis in the sternal bone.

## Declaration of competing interest

The authors declare they have no relevant interest(s) to disclose.

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