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RENAL CELL CARCINOMA FINDS MUSCLE: A RARE SITE OF METASTASIS

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AUTHOR AND AFFILIATION

Sarah loubaris[1] , Joud Boutaleb[1], Hatim Essaber [1], Hafsa Riache[1], Amine Lalaoui Salim[2] , Rania Alem[3] ,Ahmed Iben Attya Andaloussi [2],Hassan Errihani[3], Rachida Latib[1] , Youssef Omor[1].
[1] Oncology Radiology Department, Mohammed V University, Rabat, Morocco.
[2] Urology department ,Mohammed V University, Rabat, Morocco .
[3] Oncology department ,Mohammed V University, Rabat, Morocco .

Corresponding author: Sarah Loubaris

ABSTRACT

Renal cancers, especially clear cell carcinomas, have an unpredictable clinical course with a high metastatic potential and among its secondary locations, the muscle site is not among the most frequent.
We report the case of a 48-year-old woman in whom the discovery of a secondary muscular localization in the rectus abdominis muscle was made at the time of the diagnosis of a renal cell carcinoma.

KEYWORDS

Renal cell carcinoma – Muscular metastasis - Diagnosis - Imaging - Oncology.

MAIN ARTICLE

Introduction :

Renal cancers, especially clear cell carcinomas, have an unpredictable clinical course with a high metastatic potential and among its secondary locations, the muscle site is not among the most frequent. Surgical removal of metastases remains the option of choice when the metastasis is single, resectable and the patient is in good general condition. In other cases, immunotherapy and targeted therapy, which have revolutionized the treatment of renal cancer known as chemoresistant, are proposed. Hence the importance of a rapid multidisciplinary management in order to adapt the therapy according to the case.

We report the case of a 48 year old female patient ,with no previous history , in whom the diagnosis of renal cell carcinoma has been made with an atypic metastasis in the rectus abdominis muscle.

Patient and observation :

We present the case of a 47 years old female patient, with no previous history of any particular problem, addmited for a macroscopic hematuria with left lumbar pain and general condition. A renal ultrasound was requested, showing a suspicious inferior polar and medial renal tissue mass.

The investigation was completed by a chest ,abdominal and pelvic CT scan with and without contrast injection at the arterial, portal and late stages, which allowed a better characterization of the suspicious mass and revealed the presence of a secondary muscular location.

An echo-guided biopsy of the left renal mass was performed and came back in favor of a chromophobe renal cell carcinoma.

The evolution was marked by a rapidly progressive increase in the size of the parietal mass of the rectus abdominis, which became voluminous, hard, and both functionally and aesthetically embarrassing.

Ultrasound, CT scan and abdominal-pelvic MRI showed a significant increase in size of the metastatic lesion in the rectus abdominis muscle.

In our case, the patient did not have the financial means to benefit from targeted therapy and immunotherapy, and the locally advanced and therefore unresectable nature of the muscle metastasis as well as the altered general condition made the task more difficult. Unfortunately, the patient was classified as being in palliative care.

Discussion :

Kidney cancer, represented mainly (80%) by clear cell renal cell carcinoma, is the third most common urogenital cancer. Its incidence has been increasing in recent years due to the increase in the number of medical imaging procedures and therefore of chance discoveries, but also due to the multiplication of environmental risk factors. The unpredictability of the evolution of renal cell carcinoma justifies a close monitoring of the patients. The discovery of metastasis can be made on thoraco-abdomino-pelvic scans during the initial work-up, of evaluation or carried out following clinical signs of call.

The cancer is immediately metastatic at the time of diagnosis in 1/3 of the cases, otherwise within the first three years following the management of a localized cancer or in other cases later within ten years following the diagnosis, even if the primary tumor has been resected (1-2-3) with a median survival in case of absence of treatment of 6 to 12 months and a survival at 5 years of <20% (7)

The predilected sites of secondary localization of this cancer are pulmonary, adrenal, hepatic, cerebral and bone. (6) But it can also metastasize to other less typical sites, in this case to the muscle, the prevalence of which is probably underestimated because it is often asymptomatic or masked by other, more obvious manifestations.

These muscle metastases, often asymptomatic, usually occur in patients at an advanced stage of their disease and represent a poor prognostic factor that must, however, take into account the time of their appearance after diagnosis, their number and their location(s) [5]. If, at the time of their discovery, there may be metastases in other site [1,3,5], this muscle involvement can sometimes be isolated. Pelvic and paravertebral muscles seem to be the preferred sites [5,6], but many other locations may be involved, including muscles of the shoulders , upper and lower limbs , masseters, oculomotor muscles myometrium and as in our case,diaphragm and rectus abdominal muscle .[11]. Their mechanism is either direct contiguous invasion or hematogenous invasion.

The rarity of this atypical localization is to date unexplained, but several theories have been proposed, the most plausible of which are the acidity of the environment in the striated muscle due to the production of lactic acid which slows down the angiogenesis phenomenon, the high concentration of protease inhibitors in the extracellular matrix of the striated muscle, lymphocytes, natural killers that inhibit and resist tumor growth, muscle contractions that destroy tumor cells, fluctuation of local temperature, vascular flow during contractions, and the deficit of specific tumor receptors in the muscle. (9-10-11)

The couple CT coupled with MRI injected, represent the Gold standard for the diagnosis of metastasis of renal cancer.

Surgical ablation is the basic treatment for localized renal cancer or single metastasis, otherwise or for locally advanced metastasis, surgery is discussed in a multidisciplinary meeting as there are no specific guidelines for management.

As for other treatments, the results of chemotherapy in renal cell carcinoma are poor. Currently, targeted therapy is the first-line drug treatment in the management of renal cell carcinoma and its metastases, whose effect is increased when combined with other treatments as immunotherapy and radiotherapy, but when used alone, complete remission is found in only 1-3% and can increase to only 2-6% if combined with immunotherapy (12- 13).

Conclusion

Clinicians and radiologists should always bear in mind the unpredictabaly evolution and nature of the kidney neoplasm and its high ability to metastasize to atypic locations like skeletal muscles.

Muscle metastases may occur long after the diagnostic and an initial radical nephrectomy. Early detection of metastasis with a clinical examination and CT scan allows for a better and quick medical care and therefore improves the prognosis.

FIGURES:

Figure 1: Ultrasound showing the suspicious inferior polar and medial renal tissue mass.

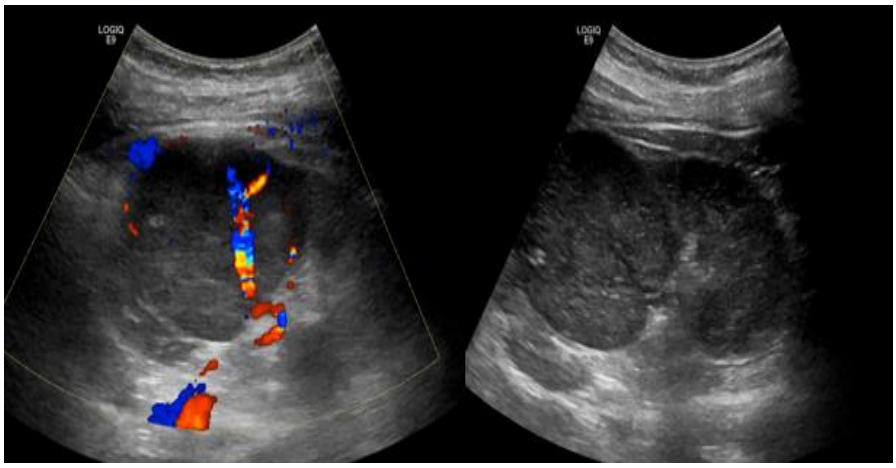


Figure 2: Abdominal-pelvic CT scan in coronal (a) section at portal time showing a mass at the inferior pole and mid of the left kidney, heterogeneously enhanced after contrast injection

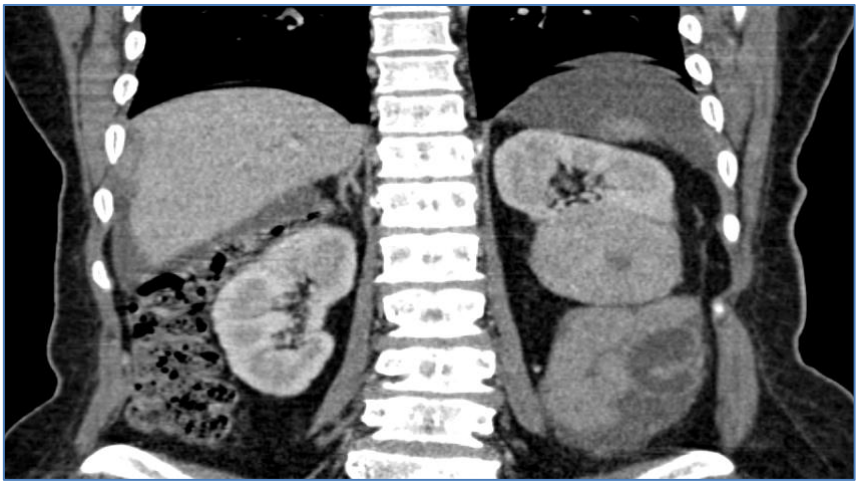


Figure 3 : Abdominal-pelvic CT in axial and coronal reconstruction: showing an hypodense parietal mass at the expense of the right rectus abdominis muscle, heterogeneously enhanced after injection contrast

Figure 4 : Visible abdominal wall mass corresponding to the rectus abdominis muscle metastasis. The lesion appears as a firm, protruding subcutaneous swelling with overlying skin discoloration.

Figure 5 : Abdominal-pelvic ultrasound in (B) mode showing a voluminous parietal mass, budding, with lobulated contours, hypoechoic, containing numerous cystic lodges.

Figure 6 : Abdominal and pelvic CT in axial and sagittal reconstruction showing a budding parietal mass developed on the right side of the lower abdominal wall, with a double cystic and tissue component, heterogeneously enhanced after injection of PDC, encompassing the rectus abdominis muscles and infiltrating the subcutaneous tissue in places.

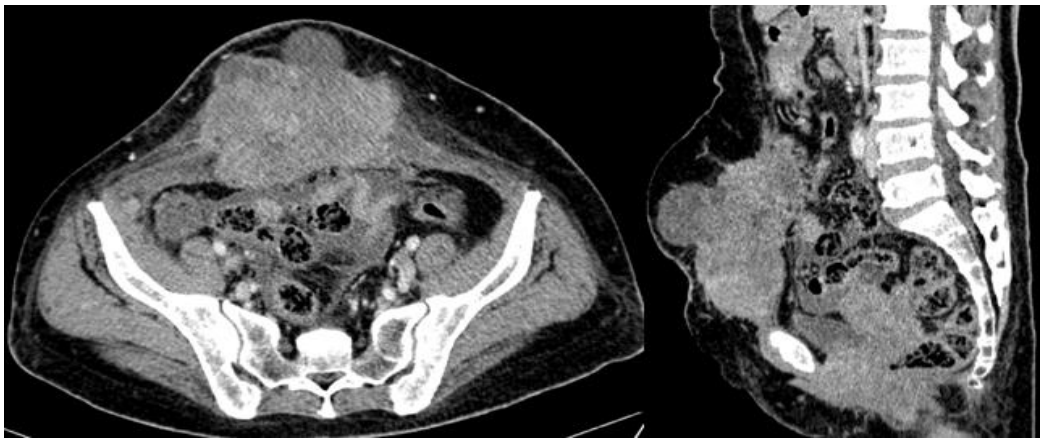
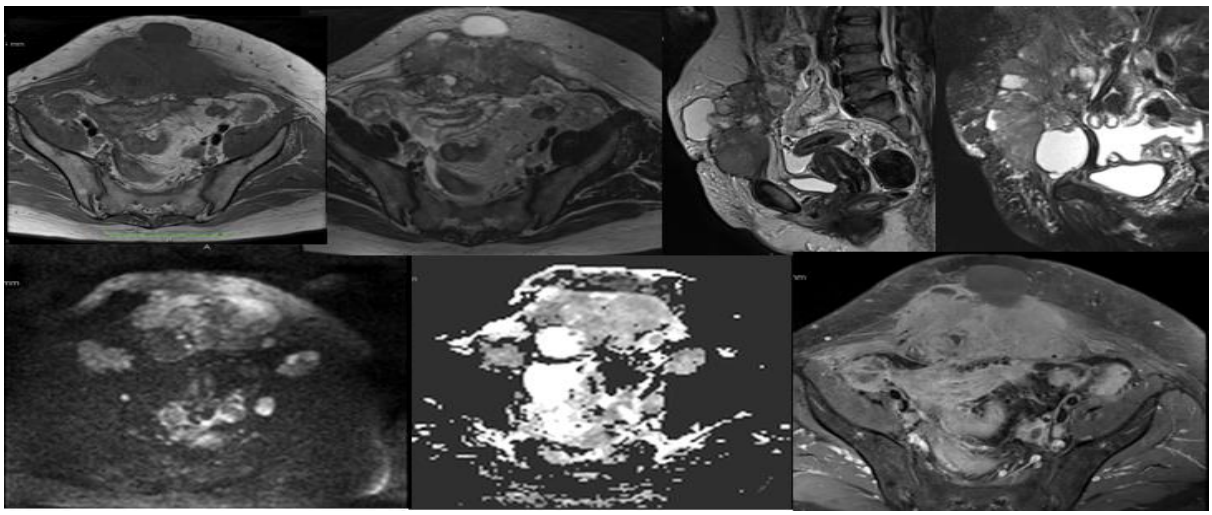


Figure 7 : Pelvic MRI in T1 and T2 weighting with and without FS, sagittal and axial sections, diffusion and injection of Gadolinium showing a process depending on the anteroinferior abdominal wall, in dark signal internsity on T1 image, heterogeneous intermediate signal on T2 image, not erased after fat suppression, containing cystic areas, restrictive to diffusion with low ADC, heterogeneously enhanced after contrast infusion.



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