Skeletal Metastases in Renal Cell Carcinoma: A Peculiar Occurrence after Treatment and Long Term Remission

Renal Hücreli Karsinomda İskelet Metastazları: Tedavi Sonrası Özel Bir Oluşum ve Uzun Süreli Remisyon

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ABSTRACT

Distant metastases are characteristic for renal cell carcinoma (RCC). Metastases has been observed years after removal of the primary tumor hence the need for surveillance. The most commonly involved sites are the lungs (33-72%), intra-abdominal lymph nodes (3-35%), bone (21-25%), brain (7-13%) and liver (5-10%). Skeletal muscle metastases on the other hand are extremely rare. Our patient presented with uncommon metastasis of RCC to the left brachioradialis, which supports the unpredictable nature of this neoplasm.

Key Words: Renal cell carcinoma, skeletal muscle metastasis, surveillance

Received: 10.10.2018 **Accepted:** 06.12.2019

ÖZET

Uzak metastazlar renal hücreli karsinom (RCC) için karakteristiktir. Metastaz, primer tümörün çıkarılmasından yıllar sonra gözlenmiştir, dolayısıyla sürveyansa ihtiyaç duyulmaktadır. En sık tutulan bölgeler akciğerler (% 33-72), karın içi lenf bezleri (% 3-35), kemik (% 21-25), beyin (% 7-13) ve karaciğerdir (% 5-10). Öte yandan iskelet kası metastazı oldukça nadirdir. Hastamız, bu neoplazmanın öngörülemeyen doğasını destekleyen RCC'nin sol brakioradyalise nadir metastazı ile başvurdu.

Anahtar Sözcükler: Renal hücreli karsinom, iskelet kası metastazı, sürveyans

Geliş Tarihi: 10.10.2018 **Kabul Tarihi:** 12.06.2019

INTRODUCTION

Distant metastases are characteristic for renal cell carcinoma (RCC). Metastases has been observed years after removal of the primary tumor hence the need for surveillance. The most commonly involved sites are the lungs (33-72%), intra-abdominal lymph nodes (3-35%), bone (21-25%), brain (7-13%) and liver (5-10%) (1). Skeletal muscle metastases on the other hand are extremely rare. Our patient presented with uncommon metastasis of RCC to the left brachioradialis, which supports the unpredictable nature of this neoplasm.

CASE REPORT

A 57-year-old man with history of left nephrectomy in 2007 for left renal cell carcinoma (pT2N0M0) presented 9 years later with a painless swelling on the left forearm. The swelling had progressively increased in size. The sensation and motor function of the left upper limb were intact. Computed tomography (CT) angiography suggested an arteriovascular malformation within the left brachioradialis, however, magnetic resonance imaging (MRI) revealed it to be a 2 x 3 cm hypervascular fusiform-shaped solid tumour (Figure 1). The lesion was successfully excised and the perioperative course was non-complicated.

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doi:http://dx.doi.org/10.12996/gmj.2019.78

The metastatic nature of the lesion was confirmed after histopathological examination of the excised specimen. Post-operatively, he had a re-staging CT of the thorax, abdomena and pelvis. The CT revealed extensive bilateral pulmonary metastases. Patient was offered targeted therapy, but opted conservative treatment.

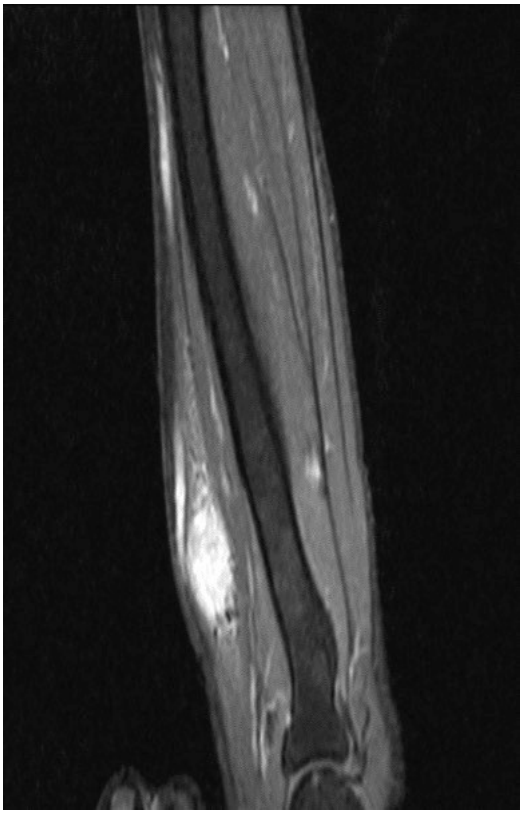

Figure 1. A hypervascular fusiform-shaped solid tumour demonstrated by MRI

DISCUSSION

Renal cell carcinoma (RCC) is approximately 50 percent more common in men compared to women (2). RCC occurs predominantly in the sixth to eighth decade of life with median age at diagnosis around 64 years of age, and rarely seen under 40 years of age (3). Established risk factors for RCC include cigarette smoking, hypertension, obesity, overuse of analgesics, polycystic kidneys and occupational exposure to toxic substances such as cadmium and asbestos (4). Although most RCCs are sporadic, it can also be of genetic aetiology such in the course of von Hippel–Lindau disease.

Due to its high vascularisation, RCC shows great ability to metastasise. The common haematogenous spread is to the lungs (33-72%), intra-abdominal lymph nodes (3-35%), bone (21-25%), brain (7-13%) and liver (5-10%) (1). Metastasis to skeletal muscles is however, very rare. This is because of the high vascularisation of the muscles, their extensive surface and production of lactic acid which suppresses tumour's angiogenesis (5). The prevalence of metastasis of RCC to skeletal muscle is estimated at 0.4% (6). The prevalence could probably be higher as skeletal muscle metastasis can remain asymptomatic for a long time. The metastasis is usually only detected when the size is large or when it starts to exhibit symptoms.

Skeletal muscle metastasis of the RCC has been previously described on deltoid, triceps brachii, biceps, brachioradialis, trapezius, muscles of the abdominal wall, iliacus, iliofemoral muscle, gluteal muscles, quadriceps femoris and biceps femoris. As for imaging, skeletal muscle metastasis is characterised by clearly increased signal intensity in T2 weighted MRI images, as observed in this case.

If left untreated, patients with metastatic RCC have a median survival of 6 to 12 months and a 5 year survival rate of <20% (7). Skeletal muscle metastasis of RCC is not well-studied and reviewed, hence, there is no particular research which compares the treatments results or provides any treatment recommendations; however the survival rate in atypical metastasis is comparable with lung metastasis (8).

Early detection of single metastasis is important, as surgical resection might be possible. Metastatectomy improves the prognosis, increasing the 5 year survival rate by 35–50% (9). A survival advantage from complete metastasectomy was also observed among patients with multiple, non-lung metastasis, who had a 5 year survival rate of 32.5% with complete resection versus 12.4% without complete resection (10).

In view of the unpredictable nature of RCC, it is difficult to provide an accurate follow up in this group of patients. Nonetheless, thorough clinical examination and CT abdomen should be considered as most effective. CT is the most accurate method to detect metastasis and to monitor treatment response. Patients with RCC should undergo a long term follow-up for many years, as RCC can metastasise even after 19 years post radical nephrectomy (10).

CONCLUSION

Clinicians dealing with RCC should be vigilant of the unpredictable nature of this neoplasm, as it has tendency to metastasise to uncharacteristic locations such as to skeletal muscles, even years after the excision of the primary tumour. Early detection of these metastases allows the application of surgical treatment, and thus improves prognosis (in cases without concurrent lung metastases).

Conflict of interest

No conflict of interest was declared by the authors.

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