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Distant Metastases From a Small Renal Cell Carcinoma: A Case Report

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ABSTRACT

Renal cell carcinoma (RCC) less than 3 cm in diameter rarely metastasizes. In this report, we present the case of a metastatic RCC in which the primary tumor was 1.6 cm. We further review the relevant literature to highlight this rare but important clinical presentation.

Introduction

Small renal masses (SRMs) are believed to be of indolent pathology. In a retrospective review by Thompson et al, only 1 out of 781 patients with a tumor diameter less than 3 cm presented with metastatic disease.[1] Indeed, protocols for active surveillance of renal masses are often limited to clinical T1a tumors. When SRMs are found in the presence of metastatic disease, it introduces unique challenges regarding treatment and management. Here, we present the case of a man who initially presented with metastatic disease and a cT1a renal mass.

Case presentation

A 65 year-old gentleman with a history notable for heavy smoking and stable lung nodules presented to his primary care physician with limited mobility due to numbness and pain in his left chest wall, shoulder, and hand of 6 months duration. He subsequently underwent a CT scan of the chest for surveillance of his lung nodules, which were unchanged from prior. However, many lytic lesions were visualized in the thoracic spine, and he was referred to the neurosurgical service at our institution for evaluation.

Further review of the imaging showed pathologic fractures with tumor compression of the thecal sac and spinal cord at T3, T4, T5, and T11 (Fig. 1A). Lytic lesions were also observed in the lumbar spine (L1), left eighth rib, and right iliac wing, concerning for metastatic disease. In addition, a small (1.6 cm × 1.4 cm) enhancing renal mass was demonstrated on the lateral aspect of the left upper pole, raising suspicion for RCC (Fig. 1B). There were no pathologically enlarged abdominal or pelvic lymph nodes.

The patient was taken to the operating room for multi-level decompression and fusion of T1-L1 vertebrae and resection of the epidural tumor at T4, T5, and T11. Pathology of the tumor revealed a metastatic clear cell renal cell carcinoma, cT1aN0M1. He was recommended stereotactic body radiation therapy to improve local control of his spinal metastasis. Cytoreductive nephrectomy (CN) of the primary renal mass was considered but ultimately deferred given the patient's extensive metastatic disease burden. Several management options were discussed, ranging from standard therapies (high-dose IL-2, tyrosine-kinase inhibitors) to clinical trials (CheckMate 214 – nivolumab with ipilimumab versus sunitinib monotherapy; NCT02231749).

Discussion

Metastatic disease is rarely observed in the setting of SRMs,[1] a phenomenon associated with greater acceptance of active surveillance as a management option for these lesions. As this case report demonstrates, however, SRMs may in rare instances possess metastatic potential, and patients must therefore be counseled regarding the possibility of progression during surveillance.

The prognosis of RCC is largely tied to the presence or absence of metastatic disease. In the absence of metastasis, patients with localized RCC can be definitively treated with surgery and have a five-year disease-specific survival of 80–95%.[2] This figure drops to

Abbreviations: RCC, renal cell carcinoma; SRM, small renal mass; CN, cytoreductive nephrectomy; IMDC, International Metastatic Renal Cell Carcinoma Database Consortium; ULN, upper limit of normal; FPTV, fractional percentage of tumor volume.

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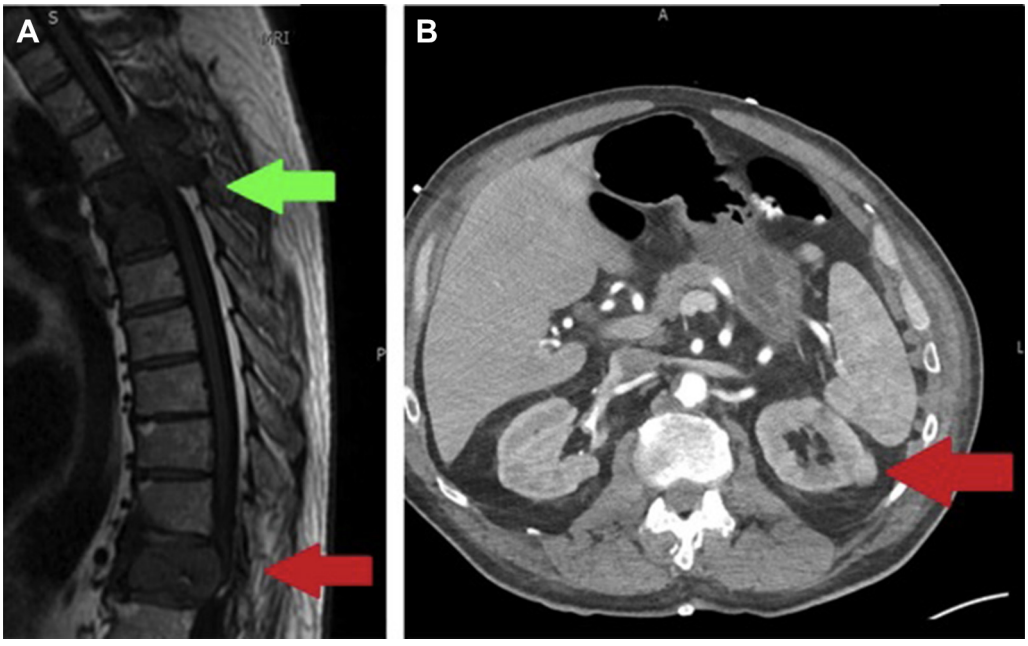

Figure 1. (A) T1-weighted MRI of the thoracic and lumbar spine demonstrating metastatic tumor compression of the thecal sac and spinal cord at T3-T5 (green arrow) and T11 (red arrow). (B) CT with contrast of the abdomen demonstrating 1.6 cm left renal mass (red arrow).

less than 10% for patients with metastasis, although several groups have demonstrated increased survival in individuals with isolated metastatic lesions amenable to resection.[3] The vast majority of patients with metastasis, however, present with widespread disease, and the median overall survival has historically been only 10 to 15 months with cytokine therapy.[2]

The more recent advent of targeted agents, such as sunitinib, has changed the landscape of treatment for metastatic RCC, and median overall survival has increased to beyond two years in this population.[2] While CN was associated with a demonstrable survival benefit during the era of cytokine therapy, the role of CN remains unclear in the current setting. In a contemporary population treated with targeted therapy, Heng and colleagues recently demonstrated a survival benefit after CN in patients who met less than four of the six International Metastatic Renal Cell Carcinoma Database Consortium (IMDC) criteria (hemoglobin below the lower limit of normal, corrected calcium above the upper limit of normal [ULN], neutrophils above the ULN, platelets above the ULN, Karnofsky performance status $<$80%, and time from diagnosis to treatment $<$1 year), suggesting that a therapeutic benefit exists for appropriately selected patients.[4] The fractional percentage of tumor volume (FPTV) removed during cytoreduction also appears to have a predictive role in the therapeutic effect of CN. Specifically, resection of small primary tumors derives minimal benefit in the setting of a large metastatic burden.[5] As systemic therapies evolve, it is important that we continue investigate the role of surgery and other local treatments to provide the optimal overall care to these patients.

Conclusion

This report represents a rare case of distant metastatic disease in the setting of a 1.6 cm renal mass. Medical therapies remain the mainstay of treatment, whereas the role of cytoreductive nephrectomy remains unclear.

Disclosures

The authors do not report any disclosures or conflicts of interest.

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