Oncology

Metastatic renal cell carcinoma to the prostate and seminal vesicle

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ABSTRACT

Renal cell carcinoma (RCC) a common malignancy with potential to metastasize to visceral organs. However, it uncommonly spreads to the lower genitourinary tract. We present a man with a history of RCC status post radical nephrectomy in April 2012. He presented 8 years later with obstructive lower urinary tract symptoms and an elevated prostate specific antigen (PSA). Further imaging showed a large enhancing mass with internal blood vessels posterior to the left prostate and seminal vesicle. A prostate biopsy was performed and consistent with metastatic RCC. He was ultimately treated with immunotherapy and focal stereotactic radioablation.

Introduction

Renal cell carcinoma (RCC) is the sixth and eighth most frequently diagnosed cancer in men and women, respectively. In 2020, there are an estimated 74,000 new cases and 15,000 deaths from RCC in the United States.1 Clear cell is the most common subtype of RCC comprising up to 85% of renal tumors. Up to 17% of patients have distant metastatic disease upon diagnosis, with the most common sites being lung, bone, liver, brain, and adrenal gland.2

Secondary tumors of the prostate from distant primary neoplasms are very rare. In particular, metastatic RCC to the prostate is an extraordinarily uncommon phenomenon with few cases reported in the literature. We present a case of oligometastatic clear cell RCC discovered at the left prostate and seminal vesicle after a radical nephrectomy of the same pathology 8 years prior.

Case presentation

The patient is a 51-year-old healthy male who initially presented with an incidentally found 7.5 cm right renal mass in April 2012 after workup for suspected cholelithiasis. He underwent a laparoscopic right radical nephrectomy at an outside hospital. The pathology returned as Fuhrman grade II renal cell carcinoma, clear cell type. His stage was pT3NxMx with extension into the perirenal fat. He underwent surveillance after surgery with no symptoms or evidence of recurrence. He last presented to his two-year surveillance visit and was subsequently lost to follow-up.

In early 2018, the patient developed dysuria and obstructive voiding symptoms. He was found to have an elevated prostate specific antigen (PSA) to 5.07 ng/mL. He was treated for presumed prostatitis. Urine cytology at this time was negative. A prostate biopsy was performed in December 2018 which was negative for carcinoma. Of note, a nodule was not noted during the biopsy. His symptoms worsened throughout the year. A repeat PSA was drawn 5 months later and was further elevated to 12.49 ng/mL. A digital rectal exam was performed in September 2019, which demonstrated a suspicious nodule on the left lateral prostate. As a result, an MRI of the prostate was performed in September 2019, which demonstrated a suspicious nodule on the left lateral prostate. As a result, an MRI of the prostate was performed, which showed a 3 cm enhancing mass with internal blood vessels posterior to the left peripheral zone and seminal vesicle. The diagnosis was thought to be a paraganglioma based on imaging (Fig. 1). He underwent a repeat transrectal ultrasound guided prostate biopsy with targeted areas within the nodule. His prostate measured 33 cc. Immunohistochemical stains were positive for PAX8 and negative for PSA, consistent with metastatic clear cell RCC (Fig. 2). Further distant metastatic work-up was negative.

The case was presented at a multi-disciplinary tumor board conference. The patient was categorized as favorable risk by MSKCC and IMDC criteria. After discussion and counseling, he was started a combination of ipilimumab and nivolumab immunotherapy. Unfortunately, he developed new onset diabetes mellitus after 1 cycle of immunotherapy resulting in diabetic ketoacidosis. Systemic therapy was discontinued.

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Given close proximity to the rectum and inflammatory characteristics of the lesion, surgical resection was deferred. Thus, he underwent focal stereotactic radioablation to the peri-prostatic lesion. His most recent follow-up scans showed stable disease.

Discussion

Clear cell lesions of the urinary tract, including the prostate, often present a diagnostic challenge. RCC has the capacity to metastasize to almost anywhere in the body. In fact, some studies suggest that up to 48% of patients present with metastatic disease. However, metastasis to the prostate from RCC is very rare. In a large autopsy series, the rate of RCC metastasizing to the prostate was 0.9%. Secondary tumors of the prostate are regularly considered a late manifestation of malignant disease and often herald a poor prognosis when discovered in the clinical setting.

The likely etiology for the mass in our patient is “drop metastasis” to the rectovesical pouch that eventually seeded the prostate and seminal vesicle. However, because of the limited number of cases, the optimal treatment options are not clear. The treatment of metastatic renal cell cancers traditionally relies on systemic immunotherapy, radiotherapy, or surgical resection. The benefits of metastasectomy for solitary metastases have been firmly established with wide excision being the most common surgical technique for a solitary metastasis. Reports have shown an approximately 35% 5-year survival rate for patients who underwent nephrectomy and surgical resection of a solitary metastasis. Unfortunately in our patient, metastasectomy was not feasible due to nearby tissue inflammation and proximity to the rectum.

Conclusion

Metastatic RCC has the capability to spread throughout the body in a delayed fashion. However, involvement of the lower genitourinary tract is a rare phenomenon. Despite the rarity, new symptoms including those of urinary etiology should not be ignored in the setting of a positive oncologic history.

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