Durable biochemical response following adrenal metastasectomy for oligometastatic castrate-resistant prostate cancer

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ABSTRACT

A 77 year-old man was referred to Urology with an enlarging left adrenal mass after treatment with androgen deprivation therapy for metastatic castrate-resistant prostate cancer. He underwent a robotic-assisted left radical adrenalectomy, with pathology revealing metastatic adenocarcinoma consistent with a primary prostate adenocarcinoma. The patient had a durable oncological response to metastasectomy with no evidence of biochemical or radiological recurrence after 5 years of follow-up. Adrenal metastases from prostate cancer are extremely rare, representing only 1% of metastatic cases. Surgical resection of oligometastatic prostate cancer recurrences may be considered in select patients and may improve progression-free survival.

INTRODUCTION: Prostate cancer (PCa) is the most common non-cutaneous cancer diagnosed in American men.¹ Metastatic PCa has a well-recognized pattern of spread, most commonly to pelvic lymph nodes and bones. Less common metastatic sites include distant lymph nodes, lungs, and liver.² Adrenal metastasis is considered extremely rare, accounting for only 1% of all metastatic cases.² While androgen deprivation therapy (ADT) is the standard treatment in metastatic PCa, metastasis-directed therapy (MDT) may be considered in selected men with oligometastatic PCa. Herein, we report a case of complete biochemical response following metastasectomy of a solitary adrenal recurrence in a man with metastatic castrate-resistant PCa.

CASE PRESENTATION: A 77-year-old man was referred to the Urology clinic with an enlarging left adrenal mass. He had initially presented to his local physician with vague abdominal discomfort three years earlier. His prostate specific antigen (PSA) was noted to be elevated to 11 ng/mL. His other laboratory tests were unremarkable. Computerized tomography (CT) imaging of the abdomen at the time demonstrated left hydropnephrosis with a transition point at the ureteropelvic junction and enlarged retroperitoneal lymph nodes. The hydropnephrosis was managed with serial ureteral stent exchanges. A retroperitoneal node was biopsied, and immunohistochemistry demonstrated staining for prostatic acid phosphatase, supporting the diagnosis of metastatic prostate adenocarcinoma. He responded well to ADT with a luteinizing hormone-releasing hormone agonist injection every three months, leading to an undetectable PSA and regression of his retroperitoneal nodes. His PSA gradually rose to 1.0 ng/mL and surveillance CT imaging revealed a 5.9 cm left adrenal mass, and an atrophic left kidney. He was then referred to our institution for further management. Repeat laboratory testing confirmed a further rise in PSA to 3.6 ng/mL, despite ADT. Follow-up chest and abdominal CT scans demonstrated that the left adrenal mass increased in size to 7.6 cm with no other evidence of regional lymphadenopathy or distant metastasis (Figs. 1 and 2). Whole body bone scan demonstrated no evidence of bony metastasis and functional nuclear medicine renogram revealed a poorly-functioning left kidney. The left adrenal mass was biopsied and microscopic examination was consistent with poorly differentiated metastatic carcinoma of prostatic origin. The patient elected to proceed with surgical resection of the solitary metastasis to the adrenal gland with concurrent simple nephrectomy. While the patient in the right lateral decubitus position, pneumoperitoneum was established, and a six-port transperitoneal technique with the da Vinci surgical system was used. Following mobilization of the colon, dense desmoplastic reaction was noted around the left ureter, aorta, and left renal hilum. The medial aspect of Gerota’s fascia was very adherent to the periaortic tissue. Intraoperative ultrasonography was used to localize and delineate the adrenal mass. The mass was densely adherent to the upper pole of the kidney. An en-bloc left radical adrenalectomy and left simple nephrectomy with para-aortic hilar lymphadenectomy was performed. Total operating time was 4 hours and the estimated blood loss was 50 mL. There were no intra-operative complications. The patient had mild postoperative atelecasis, which was managed with incentive spirometry and physical therapy, and he was discharged home on postoperative day 5. The final

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ulosclerosis. His first post-operative PSA three months after surgery was negative resection margins and no nodal metastasis. The renal paren-
tumultous adenocarcinoma consistent with primary prostate adenocarcinoma with negative resection margins and no nodal metastasis. The renal paren-
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