Pheochromocytoma of the Urinary Bladder with Recurrence 10 Years Later

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\section*{Case Report}

The patient is an 80-year-old African-American female who was diagnosed with PUB at age 70. She underwent resection of the tumor at age 70, but had not had any sort of follow-up in the years post-resection. The patient presented at age 80 feeling poorly, and with complaints of nocturia and frequency, but no hematuria or dysuria. She had been having a vague pain in the left lower quadrant of her abdomen. Her past medical history included colon resection for colon cancer at age 71 and history of hypertension. She had no history of smoking. The patient’s blood pressure was 122/82 mmHg, urinalysis revealed trace white blood cells and 1+ red blood cells. The patient’s physical examination was unremarkable. Plasma tests revealed elevated metanephrines, specifically normetanephrines and total metanephrines, consistent with pheochromocytoma. Total catecholamines were normal.

CT of the abdomen and pelvis revealed an ovoid hyperenhancing sessile appearing mass in the left lower urinary bladder just anterior to the ureterovesical junction with 1–2 mm extension into the bladder wall, along with hyperenhancing 0.6 and 1.3 cm nodules, all consistent with urothelial neoplasm. No evidence of enlarged lymph nodes or hematogenous metastases were seen.

MRI of the abdomen revealed within the left posteroinferior bladder wall, a heterogeneous T2 hyperintense avidly enhancing intramural 2.2 cm mass, and additional smaller similar appearing lesions. The former lesion bulges the serosal surface, to lesser extent mucosal surface of the bladder, though bladder epithelium/mucosa appeared grossly intact (fig. 1, 2).

Cystoscopy revealed subtle external compression of masses onto the bladder, but no masses within the lumen of the urinary bladder.

Open partial cystectomy with removal of the tumors was then performed. The procedure revealed three distinct tumors, the largest being close to the left ureteral orifice and bladder neck re-
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All 3 tumors were then removed. Throughout the procedure the patient had a few transient spikes in blood pressure up to 200 mmHg systolic, which were readily managed.

The patient underwent whole body meta-iodobenzylguanidine scan 6 weeks post-operation to rule out extra-adrenal pheochromocytomas, which showed no evidence of pheochromocytoma in the bladder or elsewhere in the body.

The patient has continued to return for routine follow-up in the clinic, without recurrence of any urinary symptoms and reduction of hypertension after 6 months.

Discussion

Pheochromocytomas are rarely seen in extra adre

tonal locations, with 1% discovered in urinary bladders, and they are even a rarer cause of all bladder tumors, at 0.05% [2]. The urinary bladder is the most common site of pheochromocytomas in the genitourinary tract and approximately 10% of those are malignant [3, 4].

Since first described in 1953, a review of the contemporary literature demonstrates the mean patient age of reported cases of PUB is 43.3 years, with an age range of 11–84 years, and a male:female ratio of 1.07:1 [2, 5]. The most common presenting symptoms of PUB were found to be hypertension, micturition attacks, headache, hematuria, and syncope [2]. Furthermore, 88% of PUB exhibit elevated levels of metanephrines and catecholamines [6]. Our patient was on the older end of the spectrum for common PUB patients and she presented with hypertension, urinary symptoms, and elevated metanephrines.

The most commonly reported treatment for PUB is partial cystectomy, followed by transurethral resection of bladder tumor and radical cystectomy [2]. Complete resection of the tumor is paramount in order to relieve the patient of his/her symptoms. Endourethral surgeries, including the use of lasers, have been reported with equivalent endoscopic outcomes of cystectomies in some cases of early stage PUB [7]. When performing partial cystectomy, laparoscopic and robotic-assisted procedures demonstrate some advantages in precision, decreased hemorrhage, faster recovery, and superior cosmetic effect [7].

Our patient presented with recurrence of a PUB previously resected by another surgeon, so that along with the number of masses in the bladder, influenced our decision to recommend open partial cystectomy. The imaging modalities revealed no evidence of metastases, and we did not see other evidence of such during the procedure.

We recommend, following post-operative follow-up protocols, that she should be seen indefinitely on an annual basis for cystoscopy and analysis of catecholamines and vanillylmandelic acid to detect recurrence [1, 8, 9]. Follow-up meta-iodobenzylguanidine scan should also be considered.

Fig. 1. Axial precontrast T1-WI FS (LAVA) showing intramural bladder tumor.

Fig. 2. Axial T2-WI showing perivesicular lesion.
Conclusion

In our patient, pheochromocytoma of the urinary bladder was diagnosed and resected 10 years prior to presentation, at which time she was found to have recurrence of her pheochromocytoma. The patient was treated with partial cystectomy and demonstrated no recurrence after 6 months of follow-up. The pheochromocytoma is of much interest as it is rarely located in the bladder, as in our patient. Moreover, she had recurrence of her previously resected pheochromocytoma of the urinary bladder after 10 years with no symptoms developing until shortly before her presentation to us.

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