CASE REPORT

Pheochromocytoma of the urinary bladder

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Objective: *Pheochromocytoma of the urinary bladder is rare. Herein, we report our experience with pheochromocytoma of the urinary bladder in three patients.*

Materials and methods: *Records of three consecutive patients diagnosed with bladder pheochromocytoma were reviewed. Patients' age, sex, presentation, associated conditions, diagnostic and imaging modalities utilized, management and follow up were recorded.*

Results: *The three patients included one child and two adults. An 11-year-old female presented with hematuria and bladder mass. Transurethral biopsy was non-diagnostic and she underwent partial cystectomy with eventual diagnosis of pheochromocytoma. Of the two adults, one was a 35-year-old female with history of gestational tumor who was being followed with computed tomography (CT) scan. A bladder mass was incidentally discovered. Transurethral resection of bladder tumor revealed pheochromocytoma and she underwent partial cystectomy. In retrospect, she has had symptoms related to micturition. The third patient is a 32-year-old male, who presented with fainting on voiding which suggested pheochromocytoma. He was also managed with partial cystectomy. There were no perioperative complications in any of the three patients.*

Conclusions: *Pheochromocytoma of the urinary bladder has unique characteristics. A high index of suspicion should be present in patients who present with suggestive symptoms associated with voiding. In this series, all patients were successfully managed with partial cystectomy.*

Key Words: urinary bladder, pheochromocytoma, hematuria, hypertension

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Introduction:

Pheochromocytomas are neoplasms of chromaffin tissue of the sympathetic nervous system. They may be located anywhere from the urinary bladder to the base of the

skull. Pheochromocytoma of the urinary bladder is rare and accounts for less than 0.06% of all bladder tumors[1] and less than 1% of all pheochromocytomas.[2]

The most common presentation of pheochromocytomas of the urinary bladder is hypertension, hematuria, postmicturition syncope, headache, palpitations and anxiety.

Diagnosis can be established by detection of elevated levels of catecholamines or their metabolites in the blood or urine. However, this elevation may be only present briefly during contraction of a distended urinary bladder.[3]

Imaging studies has been utilized for the localization of pheochromocytomas. Computed tomography (CT) scan is frequently used because of its high sensitivity for detection of adrenal (94%) and extra-adrenal (82%) pheochromocytomas.[4] Magnetic resonance imaging (MRI) is more sensitive than CT in detection of extra-adrenal pheochromocytomas because of its inherent tissue contrast resolution.[5] ^{131}I-MIBG scan has high specificity for bladder pheochromocytoma.[6]

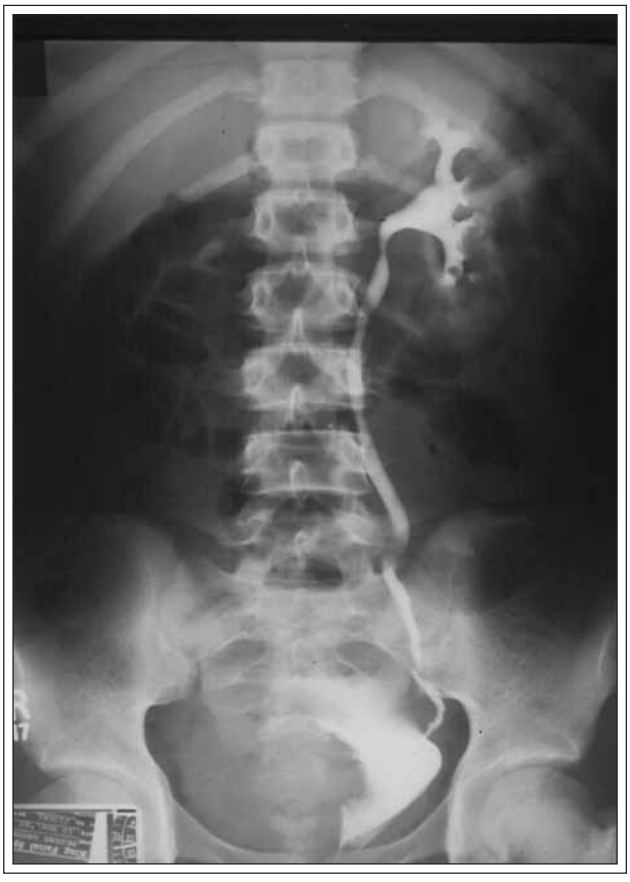

Figure 1a. Preoperative IVU in a child with bladder pheochromocytoma.

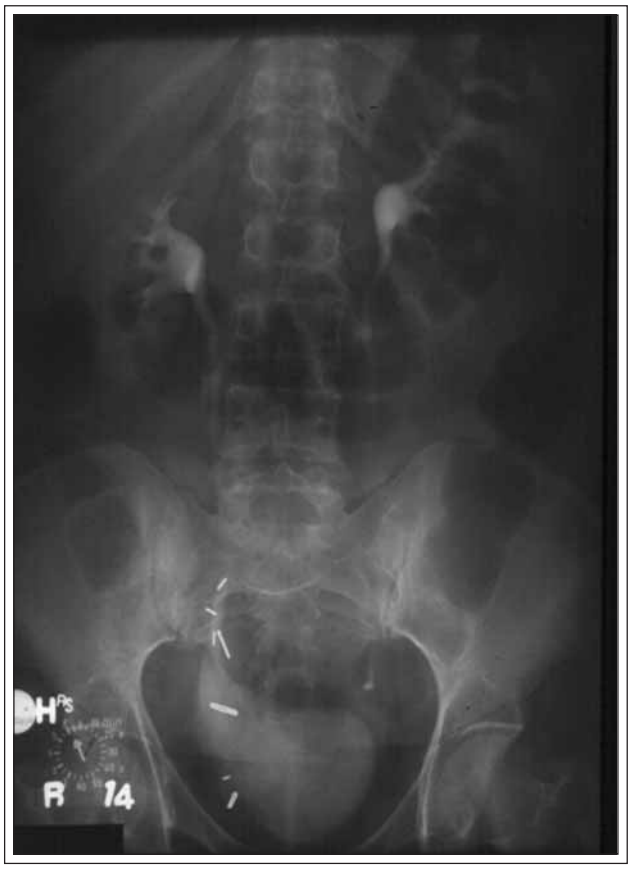

Figure 1b. Postoperative IVU after excision of bladder pheochromocytoma and right ureteral reimplantation with psoas hitch.

In this study, we report experience with pheochromocytoma of the urinary bladder in three patients.

Material and methods

Records of patients with pheochromocytoma were reviewed after Institutional Review Board (IRB) approval. Three patients with bladder pheochromocytoma were identified. These included one female child and two adults. The child was an 11-year-old female who presented with gross hematuria and bladder mass, Figure 1a. Transurethral biopsy was non-diagnostic and she underwent partial cystectomy and ureteral reimplantation with psoas hitch, Figure 1b. Pathological examination revealed pheochromocytoma.

The two adults included one female and one male. The female patient was a 35-year-old who had a gestational tumor and was followed with CT scan, Figure 2a, which revealed a bladder mass.

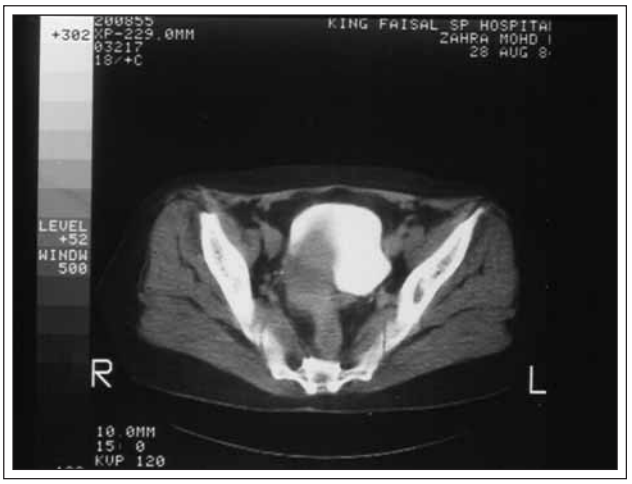

Figure 2a. CT scan showing pheochromocytoma of the urinary bladder.

Transurethral resection of bladder tumor revealed pheochromocytoma, Figure 2b. She underwent partial cystectomy. On further questioning, she related episodes of fainting attacks on micturition and that she assumed certain position while voiding to avoid falls during these fainting attacks.

The male patient was a 32-year-old, who presented with fainting on voiding which was suspicious for pheochromocytoma. He was eventually treated with partial cystectomy, ureteral reimplantation and psoas hitch. Pathology confirmed the diagnosis of bladder pheochromocytoma.

There were no perioperative complications encountered in any of the three patients. There was no recurrence of pheochromocytoma noted on several years of follow up of these patients.

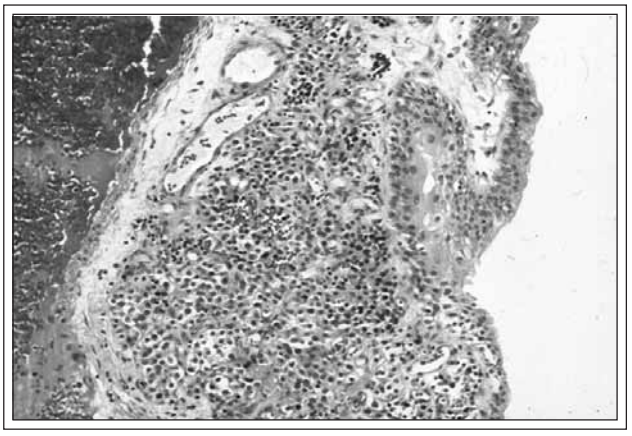

Figure 2b. Histopathological picture of bladder pheochromocytoma.

Discussion

Zimmerman et al reported the first case of pheochromocytoma of the urinary bladder in 1953.[7] Since then, several case reports followed in the literature.

Purandare et al reported a similar case to our second case. A 43-year-old woman presented with dizziness, sweating and palpitations during micturition. Her blood pressure was elevated from 160/102 mmHg to 180/110 mmHg after micturition. CT scan revealed a 6 cm x 3 cm posterior wall bladder mass protruding into the bladder lumen. Her symptoms resolved after subtotal cystectomy.[8]

Childhood pheochromocytomas are very rare.[9] In this age group, sustained hypertension is the most frequent presentation.[10] Bladder pheochromocytoma in children is exceedingly rare.[5,11,15] A 12-year-old Chinese girl presented with a history of blurring of vision. She was found to have grade IV hypertensive retinopathy. CT scan and MRI revealed a mass within the posterior wall of the trigone of the urinary bladder. Her blood pressure was promptly controlled after partial cystectomy and right ureteral reimplantation.[10]

Pheochromocytoma of the urinary bladder can present with hematuria or with micturitional symptoms and on radiological examinations (CT scan, MRI) a mass can be detected.[12,13] Partial cystectomy usually resolves these symptoms which can be accomplished by either open surgery or laparoscopically.[14]

Several case reports on incidentally discovered pheochromocytoma of the urinary bladder were reported on radiologic examination (CT scan, MRI and MIBG scintigraphy) for an unrelated (hypertension during anesthesia for closed reduction of fracture) or atypical symptoms (lower abdominal pain).[15,16]

Preoperative management of pheochromocytoma is crucial and usual precautions are applicable to surgery of bladder pheochromocytoma if preoperative diagnosis was made. Partial cystectomy seems to be adequate for most patients with bladder pheochromocytoma. Follow up of pheochromocytoma of the urinary bladder is similar to that of other sites.

Conclusions

Pheochromocytoma of the urinary bladder has unique characteristics. A high index of suspicion should be present in patients who present with fainting or other systemic symptoms during or immediately after voiding especially if associated with hematuria. Our patients included one child and two adults. All patients were successfully managed with partial cystectomy. □

References

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