Case Report

Lower urinary tract symptoms and bladder cancer in children: The hidden scenario

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Abstract Bladder cancer is extremely rare in children. We report a case series of two children with transitional cell bladder cancer who presented with lower urinary tract symptoms. Pathology revealed a low risk for recurrence and progression tumor. In such a case, early diagnosis is crucial and surgical treatment is usually the only treatment needed.

Keywords: Bladder cancer, lower urinary tract symptoms, transurethral resection

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INTRODUCTION

Bladder carcinoma typically affects older individuals. It is not very common in children and it is extremely rare in the first two decades of life, reporting an incidence of 0.1%–0.4%. Patients typically present with painless hematuria, which may be diagnostically confusing in the youngest patients. We report on a case series of two children with transitional cell carcinoma (TCC) of the bladder, who presented with lower urinary tract symptoms (LUTS). Pathology revealed a low risk for recurrence and progression tumor. In such a case, early diagnosis is crucial and surgical treatment is usually the only treatment needed.

CASE REPORTS

Case 1

A 6-year-old boy presented in the outpatient department complaining of fever, hesitancy, and urgency during micturition. His parents reported that it was the second episode of dysuria in the last 2 months, with no other symptoms at all. Physical examination revealed no specific signs or symptoms. The boy had no pain anywhere in the urogenital tract. Urine dipstick testing showed no red blood cells or leukocytes. Urinalysis was normal (glucose: negative, bilirubin: negative, ketones: negative, pH: 5.5, protein: negative, blood: negative, nitrite: negative, specific gravity: 1.020, red blood cells: 0–2/high-power field, and white blood cells: 0–5/high-power field). Laboratory tests showed no signs of infection or hematological disease.

An ultrasound of the urogenital tract was performed which showed a mass on the left side of the bladder wall. A cystoscopy under local anesthesia was arranged, which revealed a lobulated tumor near the left ureteral orifice [Figure 1]. The tumor was deep resected and fulgurated and sent for pathology. A diagnosis of transitional cell bladder tumor with no infiltration of the lamina propria or bladder muscle wall was

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returned [papillary urothelial neoplasm of low malignant potential (PUNLMP), Figure 2].[1]

Case 2

A 9-year-old boy presented in the outpatient department complaining of urgency, hesitancy, and painful urination. His parents reported that the boy had frequent, painful voiding episodes for the last couple of months, following antibiotic therapy for a previous urinary tract infection. His symptoms were attributed to residual infection by his pediatrician and continued antibiotic therapy for a short period, with no clinical improvement.

Physical examination revealed no specific signs or symptoms. Urine dipstick testing showed no red blood cells or leukocytes. Urinalysis was normal (glucose: negative, bilirubin: negative, ketones: negative, pH: 5.5, protein: negative, blood: negative, nitrite: negative, specific gravity: 1.015, red blood cells: 0–2/high-power field, and white-blood cells: 2–5/high-power field). Laboratory tests showed no signs of infection or hematological disease.

Ultrasound of the urogenital tract was performed which showed a mass on the left side of the bladder wall. A cystoscopy under local anesthesia and transurethral tumor resection was arranged. Pathology revealed a transitional cell bladder tumor with no infiltration of the lamina propria or bladder muscle wall [PUNLMP, Figure 3].[1]

There were no complications in the early postoperative period in either case. Both patients were mobilized in the next day, and the Foley catheter was left in place for 48 h. Follow-up ultrasounds in 1, 3, 6, and 12 months were negative. In addition, follow-up cystoscopy was performed in 6 and 12 months, which revealed no evidence of recurrent bladder tumor.

Finally, the parents gave their written consent, and our study was approved by the Ethics Committee of the University Hospital of Larissa.

DISCUSSION

Bladder tumors are extremely rare in childhood. Only 20 cases under the age of 10 years are reported in the literature, with a male-to-female ratio being 3:1.[2] Children usually present with gross and painless hematuria, which is also the typical sign of bladder tumors in the adolescents.[1] No risk factors typically observed in adults are considered to affect children in few studies reporting TCC.[3] Yet, it is crucial to differentiate from other medical conditions that may mimic bladder cancer, since hematuria may be undervalued, particularly in the younger ages.[4]

LUTS can be divided into storage, voiding, and postmicturition symptoms.[5] They are strongly associated

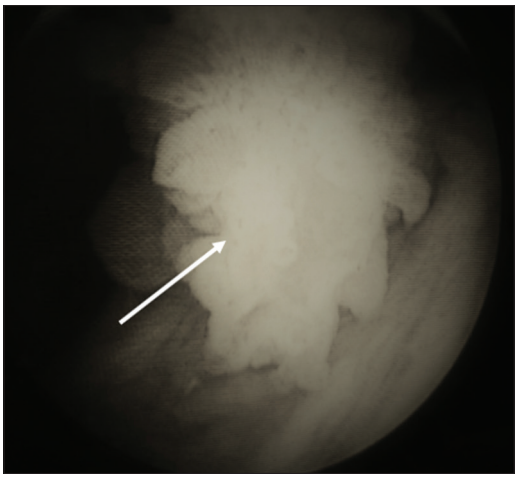

Figure 1: Cystoscopy showing the tumor (arrow)

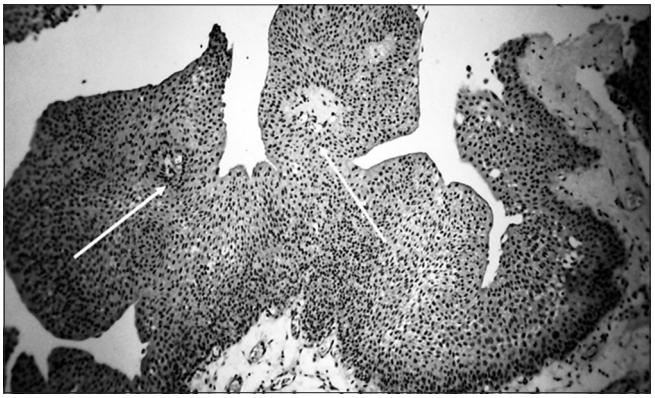

Figure 2: Bladder and exophytic tumor with focal papillary configuration. The covering urothelium shows minimal architectural irregularity (arrows) (lower power view, ×20)

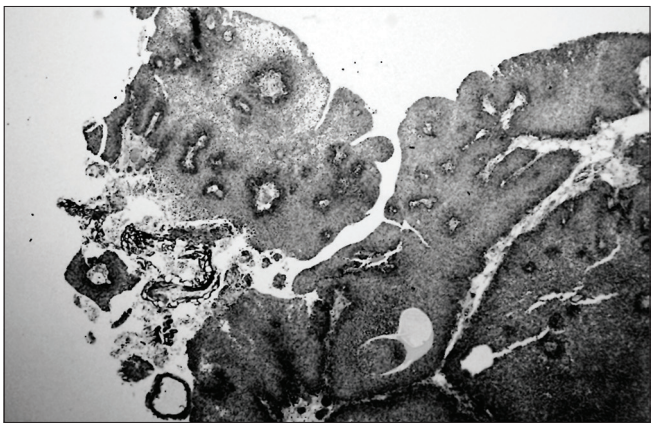

Figure 3: Papillary neoplasm with "thick" urothelial lining. Even at this intermediate magnification, there is evidence of minimal architectural distortion (×100)

with aging and symptoms may be mild.[6] LUTS progress dynamically and have traditionally been related to bladder outlet obstruction; yet, recent studies have shown that LUTS are often unrelated to the prostate. Bladder dysfunction may also cause LUTS, as well as other structural or functional abnormalities of the urinary tract.[7] Recently, LUTS have been correlated with advanced risk of bladder cancer in the adult population.[8] To our knowledge, this is the first report in the literature of correlating LUTS with bladder cancer in children.

It is evident that early diagnosis should be offered. Ultrasound imaging has considered a valuable tool in identifying and monitoring bladder lesions nowadays in children. Yet, definite diagnosis is provided only with cystoscopy under general anesthesia.[1] Since the diagnosis is made, deep resection and fulguration of the tumor is the standard therapeutic procedure.

The histopathological pattern of bladder tumors in children can be variable, but usually, most tumors are well differentiated. In our case, pathology revealed a PUNLMP. This tumor is characterized by simple papillary structures lined by thickened urothelium but with normal cytology and preserved cellular order [Figure 3].[1] Even though PUNLMP may recur quite often, it has a low rate of progression to higher grade and stage and thus is considered a tumor of favorable outcome.[9]

The most common problem with bladder tumors in children is that there are not any standardized follow-up protocols. In adults, adjuvant intravesical chemotherapy or immunotherapy installations are common procedures after tumor resection, depending on the stage and grade.[1] This remains under debate in children, mainly due to the rarity and the low malignant potential of nonmuscle invasive bladder tumors in the younger patients.[10] We chose to follow up our patient using a modified adult bladder cancer protocol for low-risk tumors, with ultrasound imaging in 1, 3, 6, and 12 months and cystoscopy in 6 and 12 months after surgery. Our patient remains tumor recurrent free 1 year after the operation.

In conclusion, bladder cancer in younger patients, even though rare, should be early suspected and treated in a child presenting with LUTS. Pathology most often reveals a low risk for recurrence and progression tumor. In such a case, transurethral resection and fulguration of the tumor is the only treatment needed.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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