TRANSITIONAL CELL CARCINOMA OF BLADDER IN CHILDHOOD AND ADOLESCENCE: A RETROSPECTIVE STUDY

Amin ullah, M Nasir jamil, Muhammad zubair, Nouman khan, Bakhatawal gul

ABSTRACT

Objectives: Transitional cell carcinoma of urinary bladder is uncommon in pediatric age group. Transitional cell carcinoma of the bladder (TCCB) is rarely found in the first two decades of life and is exceptional under 10 years of age. The aim of current series is to expand the number of reported cases in the literature and early tumour diagnosis and intervention of transitional cell carcinoma in children.

Study setting: Urology and transplant Unit at Institute of Kidney Diseases Hayatabad Medical Complex, Peshawar.

KEY WORDS: bladder, transitional cell carcinoma.

INTRODUCTION

Bladder cancer is a disease that afflicts mostly the middle-aged or the elderly people, as the majority of any other cancer type. The median age of diagnosis of bladder transitional cell carcinoma is 69 years in males and 71 years in females, but the disease can occur at any age, even in children Tumors of the urinary bladder are rare in children and nearly all of them are of mesodermal in origin, with only 0.38% of cases occurring in the first 2 decades of life. In the current report we present four cases of transitional cell carcinoma (TCC) of the urinary bladder in children of age 5, 15, 17 and 18 years. The literature on this topic is very limited, and only small series have been described. Pediatric transitional cell carcinomas of the bladder are typically characterized by low-grade histology, adolescent and young adult age, and cure with surgical resection.

MATERIALS AND METHODS

This series describe 4 rare cases of well differentiated, non- invasive transitional cell carcinomas urinary bladder(Grade 1 stage pTa) in children and adolescent. One patient was 5 years old boy with a polypoid lesion in the left lateral wall of urinary bladder. The other boys were aged 15,17 and 18 years respectively who had also a solitary growth involving a left lateral wall of urinary bladder. The initial presentation was hematuria and symptoms of urinary tract infection in all these patients. Ultrasound abdomen and pelvis was performed in all these patients, and these cases were confirmed by cystourethroscopy under anesthesia. All patients were treated with transurethral bladder tumor resection and the bladder catheter was removed 24-48 hours after surgery. Follow-up was performed by means of clinical and ultrasound abdomen and pelvis assessment and check cystourethroscopy fiest at 3month, 2nd at 9th month then yearly.

Resection of bladder tumors was performed under general anesthesia. The histopathology findings disclosed were as follows: all three transitional cell carcinomas (TCC): G1Ta. During follow-up, no recurrence occurred among these TCC cases.

RESULTS

Identifying characteristicof these four patients was hematuria. Transitional cell carcinoma was diagnosed in males only with a mean age of 14 years (range, 6-18 years). All of the patients were investigated at our centre after an episode of symptomatic hematuria. Ultrasound abdomen and pelvis identified the lesions in 3 (75%)

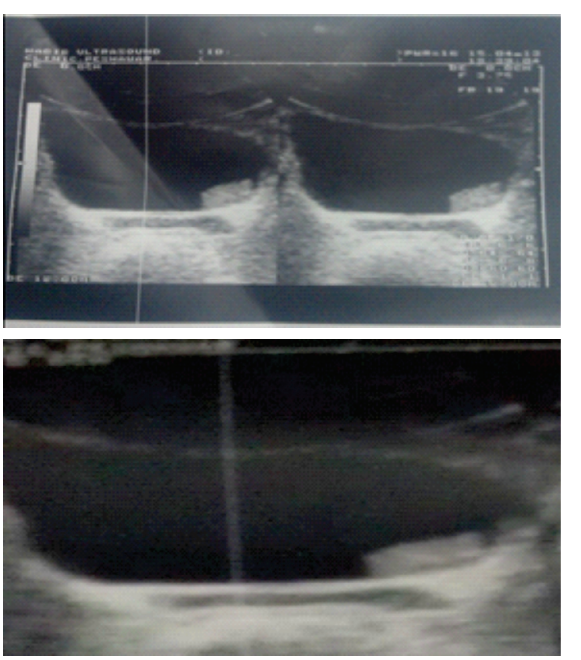

Fig 1 & 2 showing urinary bladder growths on ultrasound pelvis of the patients.

Corresponding author:
Dr Amin ullah
Email: drjamrud@gmail.com
Cell: 03339185114

of the children, while in one child it was diagnosed by means of cystourethroscopy under anesthesia. Transurethral resection of the bladder tumors was performed under general anesthesia. The histopathology findings disclosed were as follows: all three transitional cell carcinomas (TCC): G1Ta. During follow-up, no recurrence occurred among these TCC cases.

DISCUSSION

Transitional cell carcinoma(TCC) of the urinary bladder is the fifth most common neoplasm of the urinary tract and 2.1% cancer related deaths are considered due to TCC.[1] The peak incidence of TCC occurance is in the sixth decade, but it is rarely noted in younger than 40 years old individuals, thus reported incidence known is about 0.8%.[1,4] In a survey conducted by Javadpour et al. which included 10 000 cases of epithelial bladder tumors, found that only three patients were under the age of 15years. The mean age of TCC occurrence in children is 11.8 years. [2] The male-to-female ratio was 9:14, and was 39 times more common amongst white children than in black ones. [2] 100% sensitivity has been reported by Hoenig and colleagues ,of ultrasonography KUB in detecting bladder tumors, while pyelography can reveal tumors in only 75% of cases. [5,6] It has been shown that most bladder epithelial tumors in children are low-stage and low-grade solitary tumors.[3,7]

Most authors believe that TCC of the bladder is mostly benign in children than it is reported in adults.[5,8] Various risk factors responsible for transitional cell carcinoma in adults are well established and include smoking, occupational exposure to aromatic amines, radiation of the pelvis and cyclophosphamide exposure.[10,11] Chronic infection and irritation e.g. infestation of Schistosoma haematobium, also increase the risk of bladder cancer, particularly squamous cell carcinoma.[10] By contrast, risk factors among the pediatric population are poorly defined.[12,13] In our series there was no significant risk factor associated to it.

All of our patients presented to us with gross hematuria, which is presenting symptom in about 80% in patients described in the literature.[9] The sensitivity of ultrasound KUB is very high, so it can be performed easily on all pediatric aged patients group suffering from hematuria. In our series it was able to diagnose tumors in 66.6% of the patients; these were later on confirmed by cystourethroscopy under anesthesia. There was no case with a positive cytology. This finding affirms that the sensitivity of urinary cytology is limited in patients with low-grade transitional cell carcinomas (all three cases were low grade, i.e. grade I); however, the sensitivity increases in high-grade tumors (grade III).[6,7] Cystoscopy enables a final diagnosis but it requires general anesthesia and is considered more invasive, so we usually performed a cystoscopy fist at 3rd month, 2nd at 9th month then yearly for 5 years. After a mean follow-up period of 4 years, we observed no case of recurrence of transitional cell carcinoma. In view of these good results, we can say that transitional cell carcinoma of the bladder is less aggressive in children than in adults. It has a different etiology in adults and exhibits a different behavior, with a greater tendency to recurrence and stage and grade progression. However a study by Paduano and Chiella[8], reported recurrence of TCC in two out of three asymptomatic children, and detected by means of a control cystoscopy.

CONCLUSIONS

Despite of low incidence of Transitional cell carcinoma urinary bladder in children ,it must be ascertain in patient with macroscopic hematuria. Our results suggest that transitional cell carcinoma owing low grade and the low rate of recurrence in pedriatic aged group patients. Ultrasound abdomen and pelvis followed by cystourethroscopy are able to identify most tumors and this high sensitivity of ultrasound abdomen and pelvis reveals that it can be applied in the follow-up of these patients. Transurethral resection of tumor proved effective in all the present cases. We would assert that Ultrasound abdomen and pelvis is the most useful tool for screening of TCC in children.

REFERENCES

1. Khasidy LR, Khashu B, Mallett EC, Kaplan GW, Brock WA.Transitional cell carcinoma of bladder in children. Urology. 1990;35:142-4.
2. Yanase M, Tsukamoto T, Kumamoto Y, et al. Transitional cell carcinoma of the bladder or renal pelvis in children. Eur Urol. 1991;19:312-4.
3. Tsuchiya H, Nagashima K, Takahashi T. Transitional cell carcinoma of the bladder in an adolescent. Pediatr.Surg. Int. 1999;15: 588–90.
4. Aboutaieb R, Dakir M, Sarrf I, et al. [Bladder tumors in young patients]. Prog Urol. 1998;8:43-6.French.
5. Hoenig DM, McRae S, Chen SC, Diamond DA, Rabinowitz R, Caldamone AA.Transitional cell carcinoma of the bladder in the pediatric patient. J Urol. 1996; 156:203-5.
6. Uemura M, Inoue H, Nishimura K, Mizutani S, Miyoshi S. Transitional cell carcinoma of the bladder in a young patient: a case report]. Hinyokika Kiyo. 2001;47:277-9. Japanese.
7. Kawaguchi T, Hashimoto Y, Kobayashi H, et al. [A clinical study of bladder cancer in adolescent patients]. Nippon Hinyokika Gakkai Zasshi. 1999;90:614-8.Japanese.
8. Paduano, L and Chiella, E.: Primary epithelial tumors of the bladder in children. J.Urol., 139:794,1988.
9. Mottola A, Daniele G, De Benedetto A, Bianchi S. [Transitional cell carcinoma of the bladder in the first four decades of life]. Minerva Urol Nefrol. 1998 Jun; 50:139-41. Italian.
10. Yarmohammad A, Ahmadnia H, Asl Zare M. Transitional cell carcinoma in children: Report of a case and review of the literature. Urol J 2005, 2: 120-121.
11. Kilic N, Turkel T, Balkan E, Sevinir A. Transitional cell carcinoma of the bladder presenting after blunt abdominal trauma: A very rare occurrence in childhood. Int J urol 2005 mar;12 (3) : 316 -18.

12. Lerena J, Lucas Krauel, García-Aparicio L, Vallasciani S, Suñol M, Rodó J. Transitional cell carcinoma of the bladder in children and adolescents: Six-case series and review of the literature. J Pediatr Urol. 2010 Oct;6 (5):481-5.

13. Abbaszadeh S, Azizi T, Pourkhayat MJ, Nourbala MH, Taheri S Transitional Cell Carcinoma in an Iraqi Child: A Case Report. J Cytol Histol (2011) 2:112.