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Case Report & Review of the Literature

Unexpected Bladder Urothelial Carcinoma in a Young Adult-Case Report with Literature Review

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ARTICLE INFO

Article history:
Received: 19 October, 2020
Accepted: 29 October, 2020
Published: 6 November, 2020

Keywords:
Urothelial carcinoma
bladder
adolescent
children

ABSTRACT

Background: Bladder cancer is the third most common malignancy in adults, accounting for 2.1% of all cancer-related deaths. Its highest incidence is in the 6th decade of life. Urothelial bladder cancer is rare in children and adolescents, presenting in only 0.003% of the population under 20 years of age. The aim of the paper is to report a rare case of bladder urothelial carcinoma in a young girl aged 27 years.

Case Presentation: We report the case of a 27-year-old girl who presented with painless gross hematuria. She had a history of heavy smoking and recurrent cystitis. CT-KUB revealed polypoidal tumor in right lateral wall of the urinary bladder. Transurethral resection of the tumor was performed for complete removal of the tumor. Follow-up revealed no recurrence for two years.

Conclusion: Urothelial bladder carcinoma should be excluded in children and young adults when they present with painless hematuria. Although this presentation is rare, its prognosis is good.

Background

Bladder cancer is the most common malignancy in the urinary tract. Urothelial carcinoma is the most common histologic type of bladder cancer. Urothelial tumors are rare in children and young adults less than 30-year-old. These tumors are predominately low-grade, more common in males (male to female ratio 3:1) and have low recurrence rate [1]. Painless hematuria is the most significant presentation for urothelial carcinoma [2]. There are no established guidelines for the etiology, treatment, and follow-up of urothelial carcinoma in the young population. In addition, previous reports have not clearly defined young patients as some reports have defined them as patients under the age of 20 years, while others include patients up to age 45 years [3]. Thus, the aim of the paper is to report a rare case of bladder urothelial carcinoma in a young adult girl.

Case Presentation

A 27-year-old girl presented with complaints of painless gross hematuria to our outpatient department. She had a history of heavy cigarettes and shisha smoking and had recurrent urinary tract infections (UTIs) for many years. Family history was negative for any cancer disease. Initial ultrasonography (US) showed polypoidal lesion in the right lateral wall of urinary bladder. Urinary analysis revealed no infection but highlighted the presence of significant RBCs >100. Computed Tomography (CT) (Figure 1) showed evidence of lobulated well-enhanced polypoid lesion in the postero-inferior aspect adjacent to the right vesicoureteric junction measuring 39 × 35mm. No perivesical fat stranding nor perivesical lymphadenopathy were observed. Cystoscopy (Figure 2) was performed under general anaesthesia and revealed a big papillary lesion in the right lateral wall of urinary bladder. Complete trans-ureteral resection of lesion was conducted. Intravesical 40mg mitomycin was instilled within 24 hours, and the patient was discharged. Histopathological (Figures 3 & 4) examination revealed papillary fronds with stalk that shows frequent branching and fusion. The individual cells showed minimal loss of polarity. The nuclei were enlarged with mild variation in size, and focally scattered hyperchromatic nuclei were noted. Rare mitotic figures were also observed. No definite lamina propria invasion was identified. Weekly adjuvant intravesical mitomycin 40mg was administered for 6 weeks. Surveillance cystoscopy performed at 3

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http://dx.doi.org/10.31487/j.SCR.2020.11.05

months and subsequently showed no recurrence of the lesion after two years follow-up.

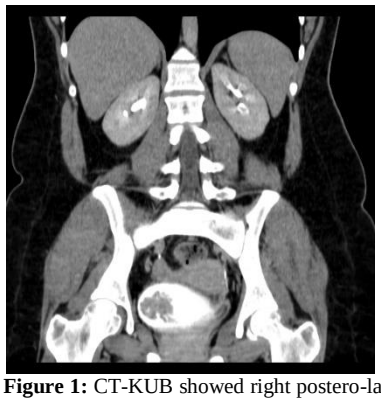

Figure 1: CT-KUB showed right postero-lateral wall polypoidal tumor in the urinary bladder.

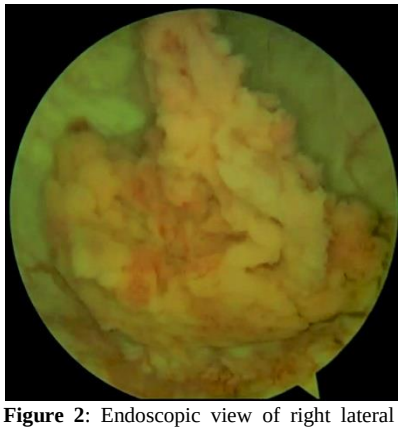

Figure 2: Endoscopic view of right lateral wall polypoidal bladder tumor.

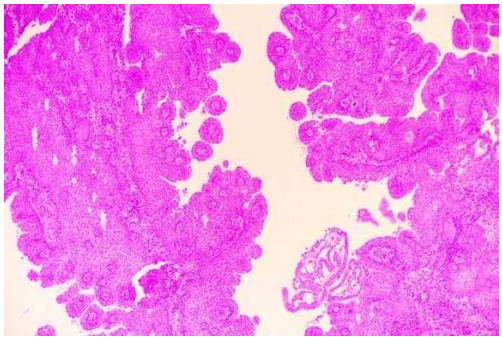

Figure 3: Magnification 10x, H&E, delicate papillae with branching and fusion.

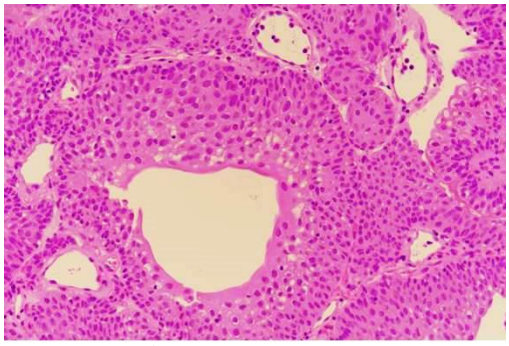

Figure 4: Magnification 40x, H&E: slight variation in nuclear polarity, size and chromatin pattern, nuclear enlargement, inconspicuous nucleoli, and occasional mitosis above the basal layer.

Discussion

Urothelial carcinoma is a rare disease in children and young adults [4]. Due to the lack of standardized management protocols for urothelial carcinoma, it is important to report and discuss related experiences. In the adult population, bladder cancer is considered as an occupational-acquired disease and is highly associated with smoking [4, 5]. Our case had a history of heavy smoking of cigarettes and shisha along with recurrent UTIs. These factors were considered predisposing factors in our report. Hematuria is the most common presentation in approximately 85% of patients. As UTIs are prevalent in women, misdiagnosis of hematuria and irritative symptoms can result in the delayed diagnosis of bladder cancer. The present paper describes a rare case of a female patient with noninvasive, low grade bladder cancer who presented with painless gross hematuria with passage of blood clots.

Urothelial carcinoma in children and adolescents is often low-grade lesions, solitary, non-muscle invasive, of low malignancy, and rarely recurrent. It is three times more common in boys than in girls [1]. Active smoking in adults and passive smoking in children were observed to be high-risk factors in the small number of cases reported [5]. All of these criteria were observed in our case, except for her sex, i.e., female. In adults, the standard practice is to perform CT scan after US. Bladder US is considered the gold standard for diagnosis and follow-up with a reported sensitivity of 100% [6].

Differential diagnosis includes blood clots on the bladder wall, ‘papillary’ nephrogenic adenoma, papillary-polypoid cystitis, fibroepithelial polyp and genitourinary rhabdomyosarcoma, which were observed in the bladder and prostate. Papillae of nephrogenic adenoma were lined by a monolayer of bland cuboidal, flattened cells and have associated tubules and cystic proliferations in the lamina propria. Unlikely, papillary polypoid cystitis showed broader base and edematous to fibrotic papillae with less branching, in contrast to the thin delicate papillae of low-grade urothelial neoplasia. Fibro-epithelial polyp consisted of variably bulbous to elongated papillae lined by typical or reactive urothelial lining with florid cystitis glandularis.

The major environmental risk factors (schistosomiasis, smoking and professional exposure) for urothelial carcinoma have been well defined for adults [7]. However, there is a lack of studies on etiology, management and prognosis of urothelial carcinoma in young individuals. Many reports have suggested clinical characteristics and treatment for urothelial carcinoma in children and adolescents, but there is still a debate on its progression and prognosis. Among adolescents and adults less than 40 years of age, bladder cancer tends to exhibit well-differentiated histology and less aggressive behaviour. There are no common guidelines for its management or surveillance. Treatment depends on transurethral complete resection of the tumor, which is sufficient in the majority of patients [8]. In the case of invasive, high-grade urothelial carcinomas, the outcome is worse [9]. Urothelial carcinoma of high grade and even low grade can show progression, resulting in mortality. In addition, the recurrence rate in children is about 7% [10].

Adjuvant treatment after complete transurethral resections for superficial non-muscles invasive lesion is not necessary in children. It has been suggested that cystoscopy every 6 months for the first 2 years and urinary

cytology/bladder US once a year for low lesion is adequate [11]. Adjuvant intravesical instillation therapy, follow-up including CT, and 3-month interval cystoscopy are justified in the case of high-grade urothelial carcinoma. Our current case report showed no recurrence for the first two-year follow-up. We performed one cystoscopy, three months after surgery and followed up with another cystoscopy after one year. Urine cytology during follow-up seems useful only for high-grade tumors.

Conclusion

Urothelial carcinoma is very rare in the young age group. Bladder urothelial carcinoma should be excluded in children and young adults when presented with painless hematuria. Younger patients with low-grade, non-muscle invasive urothelial bladder carcinoma usually have a good prognosis with rare recurrence rate.

Abbreviation

US: Ultrasonography
CT: Computed Tomography
UTIs: Urinary Tract Infections

Acknowledgements

None.

Author Contributions

HA wrote the manuscript, performed the operation, and managed the patient's perioperative course. HA gave the final approval of this manuscript. HA read and approved the final manuscript.

Ethics Approval and Consent to Participate

All procedures performed in this study were in accordance with the ethical standards of the Institution and/or National Research Committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Competing Interests

None.

Conflicts of Interest

None.

Funding

None.

Disclaimer

None.

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