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Case Report

Urothelial Carcinoma of Urinary Bladder in a 12 Year-Old Boy

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Abstract

Urothelial bladder tumors in children are an uncommon pathology, and they are not usually associated with exposure to carcinogenic factors. We report the case of a 12 year-old child diagnosed with a bladder carcinoma after performing ultrasound for microhematuria. The transurethral resection revealed a low grade urothelial carcinoma (pTa). After 5 years of follow-up, the patient is disease free. Urothelial bladder tumors in young people should be suspected in case of painless gross hematuria. They are usually solitary, low grade and non-muscle-invasive tumors and their standard treatment is the transurethral resection. The recurrence rate is very low, so it has been proposed a follow-up based on ultrasound monitoring. Cystoscopy should be reserved for cases of high suspicion of recurrence.

Keywords: bladder tumor, pediatric tumors, transurethral resection

Introduction

Bladder cancer is the fifth most prevalent carcinoma in humans. It affects both genders with a male-to-female ratio of 3:1 (Gakis et al., 2013), reaching the highest incidence in the sixth decade of life. Urothelial bladder tumors are very rare in childhood. Since 1950, there are less than 100 cases reported in patients less than 30 years, and even less in children and adolescents. We present a new case and make an overview of the literature.

Case Report

A 12 year-old boy presented with pain in the right groin. The patient reported great-grandfather with bladder carcinoma, and personal history of surgery for inguinal hernia.

The clinical and analytical examinations were normal. The urinalysis revealed the presence of microhematuria. The ultrasonography showed a 17x16-mm mass suggesting a bladder tumor in the right hemitrigone that was subsequently confirmed with a CT scan, which was requested by pediatrics doctors before receiving the patient in our service. (Figure 1). The upper urinary tract was normal in CT. The patient underwent transurethral resection of the bladder tumor without complications, and pathologic examination revealed a low-grade urothelial tumor not

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invading the lamina propria (low grade pTa). Immunohistochemical analysis of p53 was positive in this case.

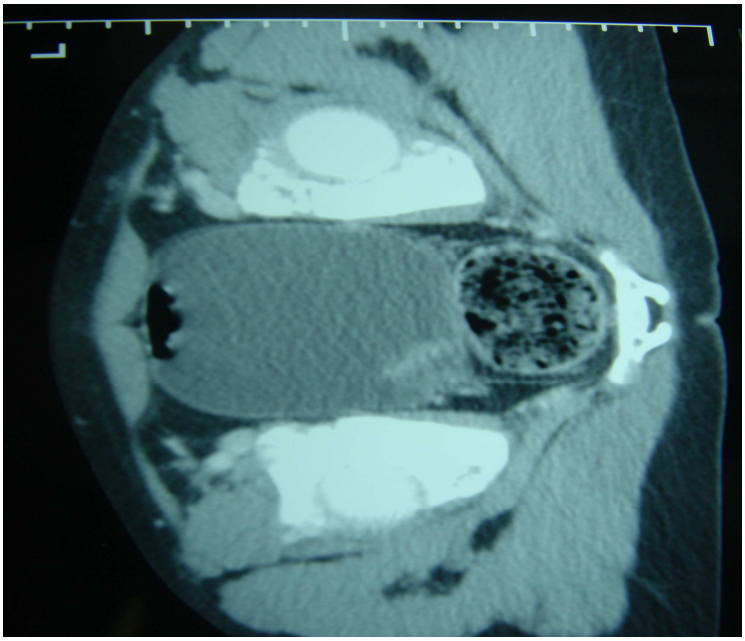

Figure 1 (TC with 17x16-mm mass suggesting a bladder tumor in the right hemitrigone)

The patient was followed with periodic ultrasounds and there is no evidence of tumor in bladder or in upper urinary tract after 5 years of follow-up.

Discussion

Bladder transitional-cell carcinoma is extremely rare in the first two decades of life. The estimated frequency in patients under 40 is less than 1% in all cases (Khaisidy et al., 1990).

Previous history of exposure to carcinogenic agents; such as smoking, chemotherapy or radiation are well-known risk factors for bladder cancer in adults (Perez Niño el al. 2009). However, the prior exposure to toxic substances is not normally found in young patients. (Hoening et al. 1996; Khaisidy et al. 1990; Perez Niño et al. 2009; Ruiz et al. 2009, Paner et al. 2011; Giedl el al. 2006)

A significant association was found between urothelial tumors and a mutation in the p53 gene. In adults, this mutation is observed in highly differentiated and aggressive tumors, whereas in young people it is also present in low-grade tumors. A study by Linn et al. (1991), from 73 tumors in patients younger than 30 years, found 81% of them to be low-grade pTa tumors. Alterations in the p53 gene can be found in the majority of tumors, suggesting that the modification of this gene may not correlate with poor prognosis tumors.

The most commonly reported symptoms are in order of frequency: gross hematuria (80%), irritative urinary symptoms or recurrent urinary tract infections (15%) and microscopic hematuria (5%). (Khaisidy et al., 1990).

The diagnosis is usually done with ultrasound and cystoscopy (Hoenig et al. 1996; Dennery et al. 2002). The urine cytology has a low sensitivity in detecting these tumors. (Hoenig et al.1996; Lerena et al. 2010). This is probably because the majority of bladder tumors in these patients are low grade. In our case, the urinary cytology was negative; and although CT scan was performed to

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complete the study, it is usually not necessary.

The standard treatment is transurethral resection. It has not been described the use of immunotherapy or adjuvant chemotherapy in pediatric patients, due to the low aggressive nature of these tumors (Paner et al. 2011). These tumors appear normally as solitary lesions and are usually located in bladder trigone or in perimeatal area (Paner et al. 2011; Giedl et al. 2006).

A 97% of bladder cancer cases in children and adolescents are non-muscle-invasive tumors (Hoening et al. 1996; Khaisidy et al. 1990; Perez Niño et al. 2009; Ruiz et al. 2009, Paner et al. 2011; Giedl et al. 2006) this percentage being significantly higher than in adults. They are usually low-grade lesions (Giedl el al. 2006) and the recurrence rate is very low (2-5%) in contrast to what occurs in adults, where recurrence rate ranges between 60 and 70% (Perez Niño et al. 2009).

As a result of the low incidence of these tumors in childhood, there is no consensus on their follow-up. Many published series suggest a follow-up based on ultrasonography. Cystoscopy should only be performed in those cases where there is a high suspicion of recurrence; as in children and adolescents, these tumors have a very low recurrence rate, and this procedure requires general anesthesia in most cases (Hoening et al. 1996; Khaisidy et al. 1990; Perez Niño et al. 2009; Ruiz et al. 2009, Paner et al. 2011; Giedl et al. 2006; Lerena et al. 2010). Our patient was followed with periodic ultrasounds; however, a cystoscopy was performed at 3 years of follow-up for episode of gross hematuria with negative ultrasound.

In conclusion, the urothelial bladder tumors in childhood are rare. They are usually solitary tumors, non-muscle-invasive and low grade of malignancy, with an excellent prognosis. Transurethral resection is a definitive treatment, with a very low recurrence rate. The follow-up should be done with urinalysis, cytology and ultrasound. The cystoscopy should be reserved for selected necessary cases.

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