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Case Report
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Pediatric Bladder Teratoma: A Case Report

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Abstract

Limited cases of bladder teratomas in the pediatric population have been published. Often, these tumors will present as hematuria- which is regarded as benign. Because of this presentation, pediatric patients often are not diagnosed until years after their initial presentation. We present a 4-year-old female patient who presented initially at 6 months with progressive hematuria that ultimately ended up being diagnosed with a bladder teratoma. In conclusion, bladder teratomas should be included in the initial work-up when presenting with hematuria.

Introduction

Bladder tumors are uncommon in children with an incidence of 0.1% to 0.4% during the first two decades of life [1]. Malignant teratomas, yolk sac tumors, and all germ cell tumors in pediatric patients are exceedingly rare and most often affect females [2-4]. There has been no specific genetics identified for bladder teratomas specifically, but there have been familial cases of ovarian teratomas identified in several subsequent generations [5].

Teratomas are the most common germ cell tumor and are defined histologically as a combination of ectoderm, mesoderm, and endoderm as well as being grossly heterogeneous with both solid and cystic features [6]. Most mature cystic teratomas are composed of ectoderm-derived epidermis, sebaceous glands and hair follicles and mesoderm-derived dermal stromal elements. However, there have been rare cases of teratomas Containing Gastrointestinal (GI) epithelium and an organized GI tract which is true in this case [7]. The most common teratomas are sacrococcygeal and ovarian in origin, with bladder teratomas being exceptionally rare [2,4]. Teratomas are primarily asymptomatic and often found incidentally on imaging. When allowed to grow undiscovered, they have been shown to have mass effects in the affecting organ. When localized to the urinary system, teratomas have been shown to emulate bladder and ureteral calculi such as lower urinary tract symptoms, hematuria, and urinary retention [8]. The most pathognomonic symptom of bladder teratoma in pilimiction, the passage of hair in urine [2].

There is little known about bladder tumors in the pediatric population, so it can lead to a delay in diagnosis and deleterious therapy [4]. Although the surgical management of these tumors is well reported, there is no consensus on the surveillance or follow-up of these patients [1]. We report the case of a 4-year-old child presenting with a bladder teratoma and discuss the diagnostic and therapeutic aspects of bladder tumors in children.

Case Presentation

This is a 4-year-old female child, with no notable pathological history, referred from a regional hospital to our department for gross hematuria with clots. This clinical picture evolved from the age of 6 months with initial intermittent terminal hematuria then progressing to total hematuria associated with hypogastric pain. She had been hospitalized several times in different hospital systems without any definitive etiology being attributed to this hematuria before being referred. On physical examination, the patient presented with pale mucous membranes, hypogastric tenderness, and a soiled diaper with observed blood clots. A biological assessment had demonstrated a microcytic hypochromic anemia at 4.8 g/dl with a hematocrit of 12%. An Emmel test performed came back positive. The kidney workup was unremarkable. An ultrasound of the urinary tree indicated an irregular peripheral tissue thickening of the bladder wall, vascularized by Doppler, suggesting a bladder tumor. A uroscan was performed and revealed a tumor of the bladder dome associated with right inguinal and external iliac lymph nodes (Figure 1). A cystoscopy under general anesthesia

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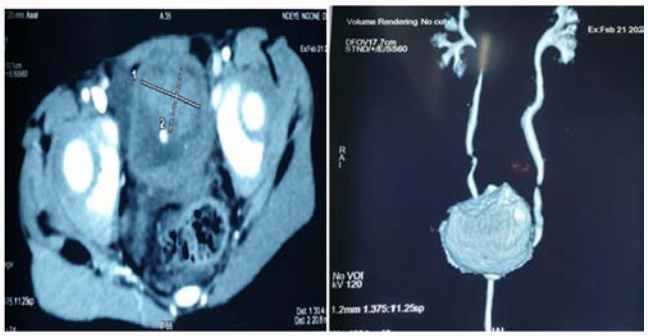

Figure 1: Uro-CT images showing bladder dome tumor.
a) Cross Section
b) Frontal Reconstruction

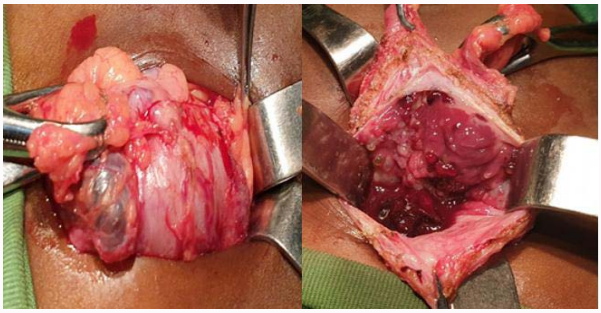

Figure 2: Intraoperative Images of the Bladder Tumor.
a) External surface of the bladder
b) Internal surface of the bladder

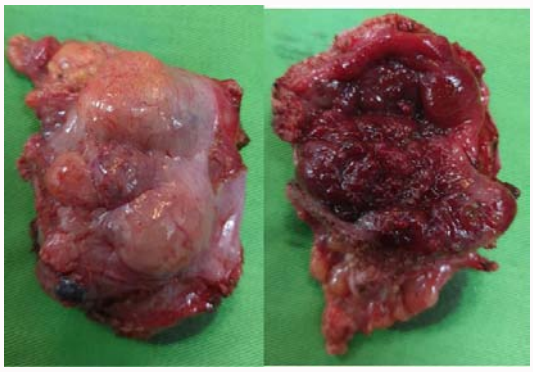

Figure 3: Extracted teratoma.
a) External Face
b) Internal Face

was performed preoperatively and revealed an ulcerative budding tumor of the dome and of the right anterolateral wall of the bladder. The surgical intervention was performed by a median infra-umbilical laparotomy and revealed a vascular tumor of the dome and of the anterolateral wall of the right bladder (Figure 2). We performed a partial cystectomy up to 1.5 cm of the ureteral meatus. The operative part measured 7 cm × 5 cm × 2 cm (Figure 3). Postoperatively, there was a disappearance of hematuria and anemia with a hemoglobin level of 13.1 g/dl. The post-operative follow-up ultrasound revealed a normal bladder. Anatomopathological examination of the surgical specimens revealed ulceration on the bladder surface. It also revealed edematous dissociation of the bladder chorion including hyperplasia of blood lymphatic vessels and capillaries giving a cavernous appearance; this is typically associated with intestinal metaplasia supporting the diagnosis of a bladder teratoma. At 7 months postoperative, there was a recurrence of hematuria which prompted the performance of a cystoscopy under general anesthesia. The cystoscopy demonstrated localized neovascularization in the bladder without tumor recurrence. One month later at 8 months postoperative, the patient reports normal urination with disappearance of hematuria as well as satisfactory continence.

Discussion

The benign nature of hematuria misleads clinicians when approaching a diagnosis of bladder teratoma. However, the most frequent reason for consultation for a bladder tumor is hematuria as seen in our patient [9,10]. Teratomas typically have a median age presentation of 30 years old which why this differential not expected [11]. Contributing to the complexity of this case, teratomas have an insidious nature growing at a slow-rate with an average of 1.8 mm per year subsequently further delaying their diagnosis [11].

The first-line examination in children is the ultrasound of the urinary tract, given its accessibility [10,12]. Cystoscopy allows a definite diagnosis, but is rarely used in children given the need for general anesthesia and the risk of urethral injury [12]. Cystoscopy was used in our patient preoperatively [12].

Treatment for bladder tumors includes partial cystectomy versus radical cystectomy. Partial cystectomy has obvious advantages over radical cystectomy. Namely, its bladder-saving approach avoids the need for urinary diversion, maintains erectile function in males, can be done under regional anesthesia, and is associated with lower morbidity and mortality [13]. In our patient, we used the partial cystectomy approach. Several other cases of bladder teratomas also used partial cystectomy approaches with success [11,14]. The prognosis for bladder tumors is often favorable as shown by a meta-analysis with a recurrence rate of 3.4% and death rate of 1% [14].

Conclusion

Despite the often-benign nature of hematuria in children, it is essential that any practitioner eliminate a bladder tumor. An ultrasound and a cystoscopy will confirm the diagnosis. The evolution is favorable after resection of the tumor. The follow-up must include investigation with serial ultrasounds and cystoscopies in front of any recurrence of the signs.

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