Case Report

Polypoid Cystitis in a 3-Year-Old Child: A Rare Occurrence

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Abstract

Polypoid cystitis is a rare, benign, reactive, exophytic urinary bladder mucosal lesion whose etiology has been attributed to chronic non-specific injury to bladder mucosa. It is most commonly seen in patients with indwelling catheter. It is a recognized mimic of bladder neoplasms. The findings at imaging studies are not well known. We report a case in a three years old child who presented with a severe form of the disease on a background of resistant *E. coli* infection. The patient was treated with antibiotics, and surgical resection of the mass and patient has been on follow-up since. The present case is notable in that it occurred in a child with no known predisposing factor except for history suggestive of recurrent bacterial urinary tract infection.

Keywords: Bacterial inflammation, lesion, polypoid

Introduction

Polypoid cystitis is a rare, benign, exophytic urinary bladder mucosal lesion with gross polypoid-papillary appearance, characterized histologically by normal or mildly hyperplastic urothelium overlying an edematous, chronically inflamed stroma.[1-3] Etiology is attributed to chronic bladder mucosal injury; commonly seen in adults with indwelling catheter.[4] It may, from the standpoint of clinical manifestation, imaging, cystoscopy and cytology, simulate urothelial, or other neoplasms.[1,2] The present case is rare, and worthy of note, as it occurred in a child, with no known predisposing factor or underlying morbidity but rather a history of recurrent bacterial urinary tract infection (UTI).

Case Report

A 3-year-old male child presented to our hospital with a 3 months' history of recurring dysuria and subsequently hematuria, necroturia, and obstructive and irritative lower urinary tract symptoms with progressive suprapubic swelling. The general physical examination revealed moderate pallor and mild weight loss. The chest was clinically clear, and the cardiovascular system was normal. There was a mildly tender suprapubic mass arising from the pelvis up, about 6 cm above the pubic symphysis. There was no evidence of lesion elsewhere and no peripheral lymphadenopathy.

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Abdominopelvic ultrasonography and computed tomography-scan [Figures 1 and 2] showed a huge exophytic, polypoid mass (6.5 cm × 5.8 cm) attached to the base and anterior wall of the bladder with minimal residual bladder capacity and bilateral upper tract dilatation. Urine microscopy and cultures were positive for multidrug-resistant *Escherichia coli* with marked pyuria. Full blood count demonstrated a hemoglobin level of 9g/dL with a total leukocyte count of 5.2×10^9/L and platelets count of 120×10^9/L. The blood film was unremarkable. An initial clinical impression of a malignant tumor with embryonal rhabdomyosarcoma as the main differential was made. However, histologic examination after a transurethral biopsy established a diagnosis of polypoid cystitis (bullous type) with broad, rounded finger-like excrescences of loose, edematous, and inflamed connective tissue cores lined by focally hyperplastic urothelium [Figure 3]. A biopsy of the mass was obtained. The patient was prepared for surgery. Intraoperatively, botryoid-like masses were seen, taking up almost the entire bladder cavity and extending into the prostatic urethra. These were then resected [Figure 4]. They aggregated to 13 cm × 12 cm × 3 cm and weighed 115 g. The diagnosis

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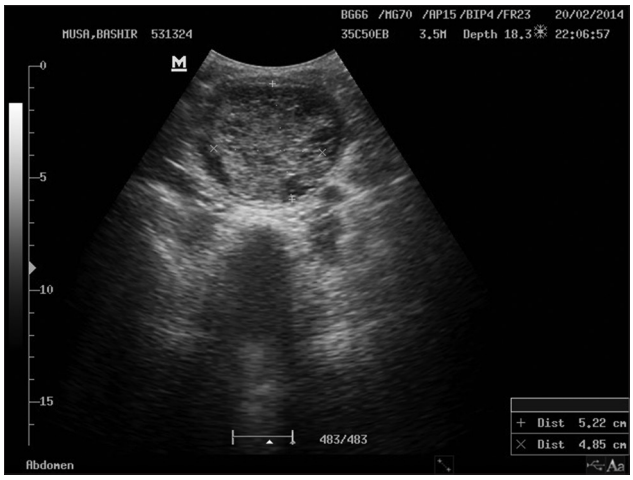

Figure 1: Ultrasonographic image showing a huge exophytic mass almost filling the bladder cavity

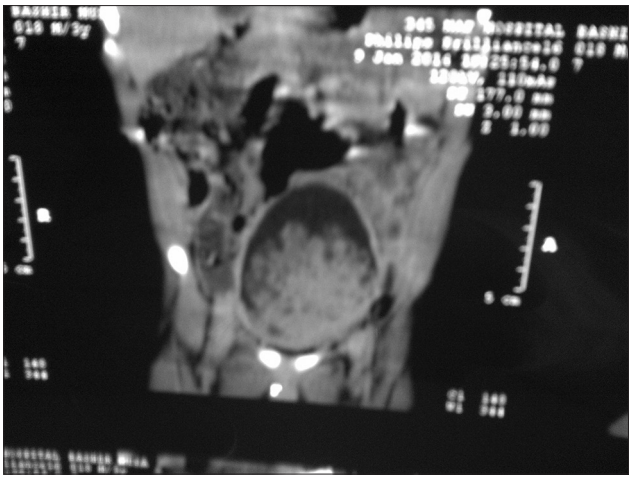

Figure 2: Coronal computed tomography scan showing polypoid masses arising from the bladder mucosa

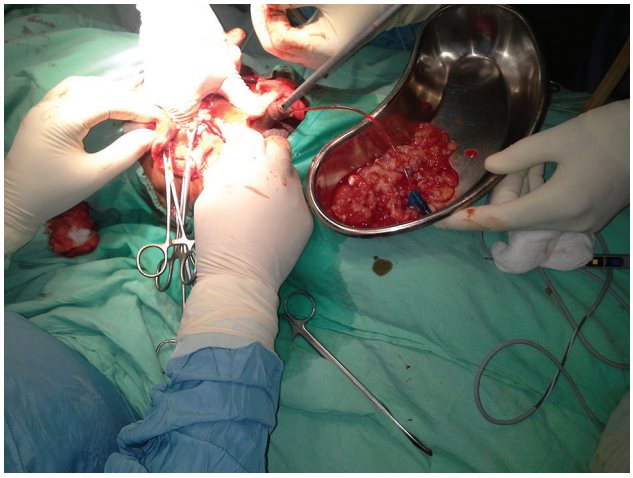

Figure 3: On-table image of resected botryoid-like masses

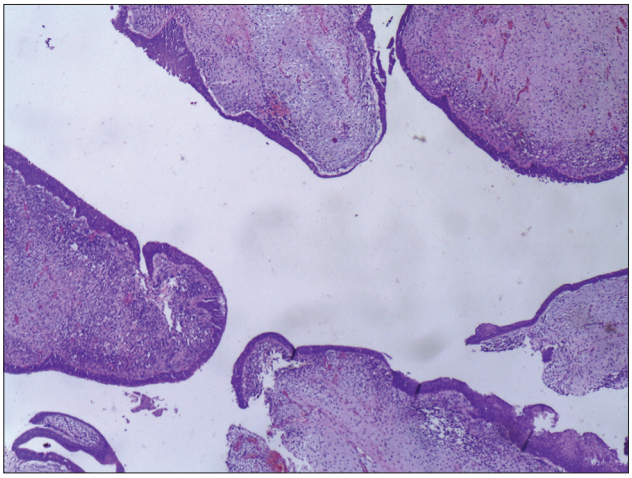

Figure 4: H and E image at ×20 objective magnification demonstrating polypoid excrescences with edematous connective tissue cores

made on the earlier biopsy was confirmed. The child did very well on antibiotics – third-generation cephalosporins – and has since been on follow-up.

Discussion

Although a wide range of epithelial and mesenchymal pseudoneoplastic lesions of the urinary bladder are recognized in literature, benign reactive diseases of the bladder that are proliferative in nature may pose a serious diagnostic challenge by masquerading (because of its exophytic nature), as epithelial or mesenchymal neoplastic processes.[1-3] A case, as this one, of a polypoid cystitis in 3 years old with no history of indwelling urinary catheter; a most frequently cited etiologic association will present an even greater problem.[4]

This could be explained by the fact that in the setting of a biopsy of a polypoid bladder lesion in a child, a high index of suspicion for rhabdomyosarcoma must always be maintained despite the fact that bladder malignancies, epithelial types, in particular, are extremely rare in children and also that even rhabdomyosarcomas are, in absolute terms, rare.[5-7] In addition, majority of patients with embryonal rhabdomyosarcoma of the urinary bladder; which typically show a classic polypoid gross appearance resembling a bunch of grapes, are under 5 years of age.[8] Furthermore, distinguishing between the two lesions clinically and radiologically may be problematic.

In addition to an indwelling catheter, other frequently cited etiological factors are vesical fistulae, radiation, tumors, and previous urological instrumentation. However, a number of cases were diagnosed incidentally by radiological and cystoscopic examinations in the evaluation of various conditions such as benign prostatic hyperplasia, neurogenic bladder, and unexplained dysuria.[3,9,10] In the present case, the only coexisting morbidity was bacterial UTI, which, though, may be a complication of obstructive polypoid lesions rather than an etiologic factor. It would be hard to reckon a linkage here, since, though UTIs are the most common bacterial infections of children, there is no serious reference to the occurrence of polypoid cystitis – a condition of adulthood predominantly – in the pediatric age group.[2,4,9,11]

The UTI in this child however, could be said to be the complicated type because of the anatomic changes. The distinction between complicated and uncomplicated UTI is based on the presence or absence of anatomic or physiologic abnormality of the urinary tract, host factors, and the anatomical resistance of the uropathogen.[11,12] The case at hand was, essentially of a, chronically inflamed bladder with grossly observed polypoid lesions.

Clinically, hematuria is one of the most important signs of genitourinary tract disease, with painless hematuria classically being associated with bladder tumors. Polypoid cystitis, although rare in pediatric age, is now an acknowledged, cause of childhood hematuria.[9] In contrast to bladder cancers, especially the predominant epithelial variety, polypoid cystitis has been mostly observed in the dome of the urinary bladder, an area usually in close contact with catheter tip.[4,13] The gross pathologic variants of polypoid cystitis include bullous cystitis, in which the elevations are broad and rounded, and papillary cystitis – that typically represent a late stage of the disease and in which they are thin and filiform.[14] Although making the distinction between bullous polypoid cystitis and bladder malignancies is basic, it may be difficult to distinguish papillary variant of polypoid cystitis from the various papillary urothelial neoplasms on radiological, cystoscopic, or microscopic examination due to similar appearances of the lesion.[14] This difficulty is even more so since the radiological findings of polypoid cystitis are not well known and computerized tomographic features are reported to be nonspecific and may not be differentiated from those of transitional cell carcinoma, most especially with cases exhibiting bladder wall thickening or perivesical fat invasion.[2,4,15,16]

Polypoid cystitis fall in the spectrum of a wide range of benign diseases of the bladder including an array of epithelial and mesenchymal pseudoneoplastic lesions that may also pose as clinical, radiological, or cystoscopic differential diagnoses for this condition and because of their diverse nature and ability to mimic a variety of epithelial and mesenchymal neoplasms, they may present diagnostic challenges to the urologist, even more so to a pediatric practitioner, or indeed the pathologist. The usual treatment consists of removing the source of irritation and surgical excision in the rare severely involved cases.[16] The patient was offered resection because it was deemed sufficiently severe enough.

Conclusion

Polypoid cystitis is an uncommon reactive disease condition, even more rare in the pediatric age group, and may occur in the absence of all the recognized predisposing factors, but it remains to be established whether microbial inflammation does, also, provoke it. It simulates neoplasm and must be considered in the making of differential diagnoses in bladder masses occurring in all age groups.

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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