Pseudo-tumoral eosinophilic cystitis in a 3 year-old girl

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Eosinophilic cystitis (EC) is an uncommon form of bladder inflammation. It is a rare disorder in children and fewer than 25 cases have been described in the literature. We report a case of eosinophilic cystitis mimicking a bladder tumor in a 3 year-old girl with symptoms of urinary frequency. The diagnosis was confirmed with pathology and she underwent clinical treatment with corticosteroids.

Key Words: eosinophilia, cystitis, bladder neoplasms, pseudotumor

Introduction

Eosinophilic cystitis (EC) is an uncommon form of bladder inflammation that was first described by Edwin Brown in 1960.[1] It is a rare disorder in children and fewer than 25 cases have been described in the literature.[2] We report a case of eosinophilic cystitis mimicking a bladder tumor in a 3 year-old girl with symptoms of urinary frequency.

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Case report

A 3 year-old girl presented to the emergency department with a history of intermittent fever for 10 days accompanied by urinary frequency. Urinalysis showed 20 WBC and >50 RBC/hpf, while her urine culture was negative. Subsequent ultrasound revealed normal upper tracts and a bladder mass of 3.8 cm x 3.6 cm x 2.8 cm at the left superolateral aspect of the bladder wall. Figure 1. The working diagnosis was a bladder tumor, possibly a rhabdomyosarcoma. Cystoscopy showed that the bladder mucosa was quite normal, with a 3.5 cm sessile mass at the left aspect of the bladder dome. A limited transurethral resection for biopsy was performed. Pathology

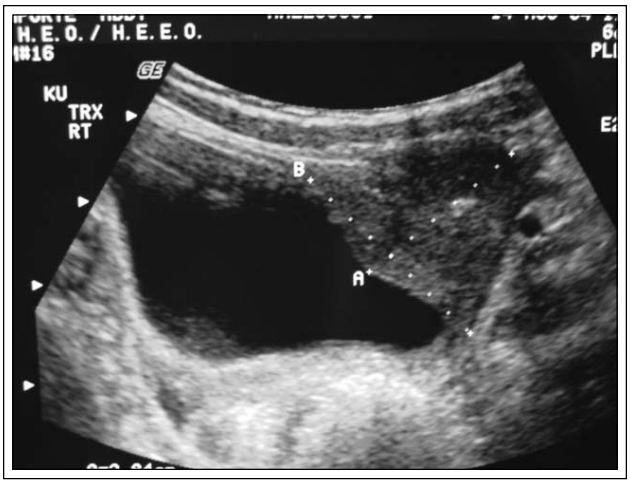

Figure 1. Bladder mass of 3.8 cm x3.6 cm x 2.8 cm at the left superolateral bladder wall.

showed unremarkable transitional bladder epithelium and that the subepithelial layer was markedly edematous and revealed a significant number of randomly distributed eosinophils, Figure 2. No malignant cells were seen in the specimens. This finding was consistent with eosinophilic cystitis. Clinical treatment was initiated with prednisone 60 mg/m^2 daily for 4 weeks, followed by a weaning dose for a total of 12 weeks. Apart from a slight weight gain (10% of body weight), her clinical outcome was uneventful during the treatment and she was asymptomatic in the 15 weeks follow up. Completely normal findings on ultrasound were demonstrated 82 days after start of therapy, Figure 3.

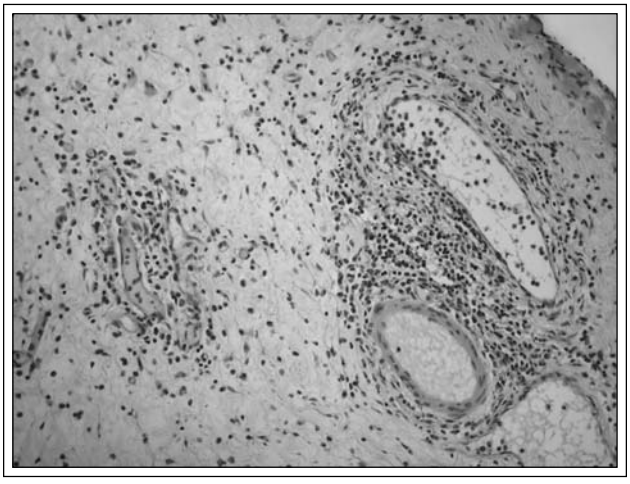

Figure 2. Subepithelial layers markedly infiltrated with significant number of randomly distributed eosinophils, especially around the blood vessels.

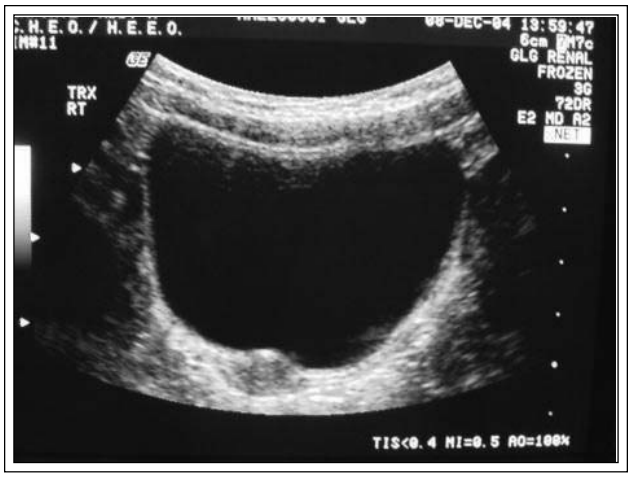

Figure 3. Post-treatment ultrasound shows complete regression of the bladder mass.

Discussion

EC is an uncommon condition characterized by bladder inflammation and irritative symptoms. This rare condition may cause dysuria, frequent micturition, suprapubic pain and hematuria. Involvement of the bladder neck or the trigone may lead to urinary retention or hydronephrosis, respectively. There is no pathognomonic sign or symptom. The definitive diagnosis is made exclusively by pathological examination. Usually transmural eosinophilic infiltration of the bladder wall is found. Although some conditions associated with this disease have been described, the precise etiology of this inflammatory reaction is unknown. It is thought to be caused by an antigenic stimulus that promotes an IgE mediated attraction of eosinophils throughout the bladder wall with subsequent mast cell degranulation.[2] Studies have shown that activated eosinophils release cytotoxic cationic proteins which can induce tissue damage. Drugs, parasites and past history of atopia may be involved in this pathophysiology. Additionally EC has been described in the literature in association with a variety of conditions such as hyperimmunoglobulinemia E, cystitis glandularis, chronic granulomatous disease, and after bladder instillation with dimethylsulfoxide or mitomycin C. To our knowledge there is no association with malignancy described in the literature.

Ultrasound is the most common imaging study used in children with urological symptoms. In our case it was helpful in detecting the condition and in its follow-up after treatment. On ultrasound EC is

usually manifested as a diffuse thickness of the bladder wall or a tumor-like mass. When clinically indicated, computed tomography can be used to provide further characterization of the mass, but it is usually not necessary. Cystoscopically, the bladder mucosa may show a diffuse edematous or polypoid cystitis or the process may be misdiagnosed as an invasive tumor of the bladder. Bladder biopsy or transurethral resection of the bladder mass for pathological study is the cornerstone of the diagnosis.

The family should be assured that although corticosteroid therapy has its risks and side-effects, it is usually curative for EC, and in association with antihistamines has been the mainstay of treatment.[3] None of the previous reports revealed details about the steroid therapy. We found a 4-week course with 60 mg/m^2, followed by an 8-week tapering protocol, similar to the treatment of nephrotic syndrome safe and efficaceous. The use of antibiotics, and avoiding possible allergens, new drugs and irritating foods may also be helpful. □

References

1. Clark T, Chang SS, Cookson MC. Eosinophilic cystitis presenting as a recurrent symptomatic bladder mass following intravesical mitomycin-c therapy. *J Urol* 2002;Apr,167:1795.
2. Thomas JC, Ross JH. Eosinophilic cystitis in a child presenting with a bladder mass. *J Urol* 2004;Apr;171(4):1654-1655.
3. Thijssen A, Gerridzen RG. Eosinophilic cystitis presenting as invasive bladder cancer: comments on pathogenesis andmanagement. *J Urol* 1990;144:977.