Tomar *et al.*
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CASE REPORT Open Access

Eosinophilic cystitis and membranous nephropathy: a rare case

Veysel Baran Tomar[1*], Özant Helvacı[1], Elif Kolay Bayram[1] and Murat Yavuz Koparal[1]

Abstract

Eosinophilic cystitis (EC) is a rare, non-infectious inflammatory bladder disease that mimics malignancy and is diagnosed histopathologically. We report a 53-year-old male patient with a history of membranous nephropathy in remission, who presented with sudden onset gross hematuria and dysuria. Imaging revealed a bladder wall lesion, which was resected transurethrally. Histopathology confirmed EC. The patient was treated symptomatically and recovered without complications. No recurrence was observed during follow-up. The patient did not require corticosteroids or antibiotics and remained asymptomatic during 6 months of follow-up. This case underscores the importance of considering EC in patients with hematuria, especially those with underlying nephropathy.

Keywords Eosinophilic cystitis, Membranous nephropathy, Hematuria

Introduction

EC is a rare inflammatory condition of the bladder which can cause hematuria [1]. Diagnosis is confirmed by biopsy. EC mostly presents with mucosal lesions of the bladder wall, and few cases have been reported as mimicking malignancies [2].

Case report

A 53-year-old male non-smoker with a history of membranous nephropathy (MN) in remission for 11 months presented with a 1-day history of gross hematuria and dysuria. He was hemodynamically stable, with tenderness in the suprapubic area, while the rest of the physical examination was unremarkable. His serum creatinine remained stable at 1.1 mg/dL without any proteinuria. His hemoglobin, white cell count, and coagulation studies were within normal ranges. Urinalysis revealed + 4 blood. After bladder irrigation, hematuria resolved swiftly. Urinary ultrasound revealed coarse bladder wall trabeculation with a 6-mm echogenic polyp on the left lateral wall. Though the patient was a never-smoker, the reports of bladder cancer coexisting with MN lead to a prompt cystoscopy. The procedure did not find any additional pathology and the polyp was transurethrally excised. Biopsy of the lesion confirmed EC, characterized by urothelial epithelium and widespread submucosal eosinophilic infiltration. No in situ or invasive carcinoma was observed. (Fig. 1). The patient was followed for 6 months postoperatively with no recurrence of hematuria or urinary symptoms. Follow-up urinalysis and ultrasound remained normal.

Discussion

Here, we present a rare case of EC in a patient who also has membranous nephropathy. We quickly planned cystoscopy due to the sudden onset of hematuria in our patient with membranous nephropathy being followed in remission, to assess the risk of malignancy. In such situations, cystoscopy should be performed promptly to rule out the suspicion of malignancy.

This case suggests that while maintaining a high index of suspicion for malignancy is crucial in patients with membranous nephropathy, it is also necessary to recognize benign conditions such as EC. As shown by this case, EC commonly presents with dysuria, hematuria, and suprapubic pain. Physical examination, which is

*Correspondence:
Veysel Baran Tomar
veyselbaran.tomar@gmail.com
[1] Gazi University, Ankara, Turkey

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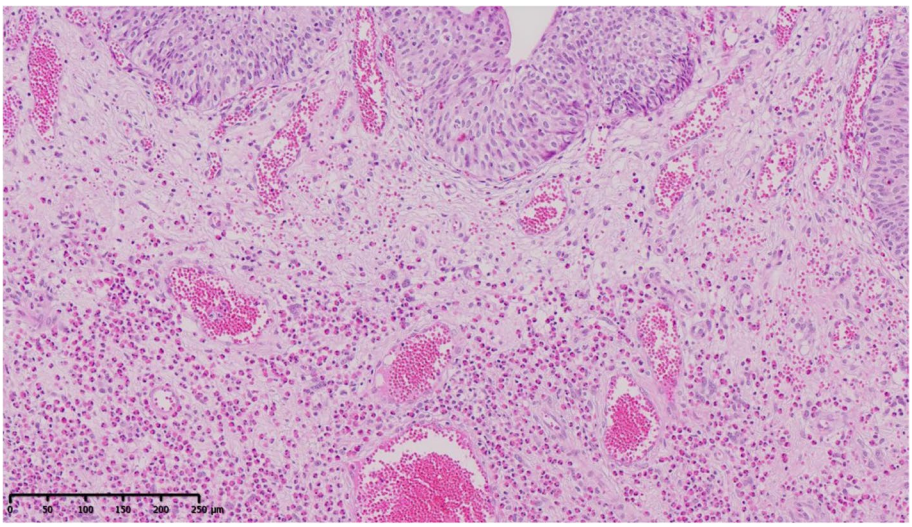


Fig. 1 Histopathology of TUR bladder specimen at initial diagnosis

usually unremarkable, may find suprapubic tenderness as found in this case. Investigations may show microscopic or macroscopic hematuria and also proteinuria on urinalysis.

Brown and Palubinskas were the first to describe EC in 1960 [3]. Only about 200 cases have been reported in the world so far [4]. In the majority of cases in the literature, no clear cause for EC has been identified, similar to our patient. The most common factors contributing to EC include a history of asthma/allergy/atopy and bacterial infections [5]. Some EC cases have been linked to medications (penicillin, coumadin, BCG, levetiracetam, mitomycin, dimethyl sulfoxide). Our patient had none of those. Less common potential causes of EC include mononucleosis, recurrent urinary tract infections (UTIs), chronic granulomatous disease, BK polyomavirus infection, umbilical cord transfusion, bladder stones, previous pelvic trauma, nephrogenic adenoma, parasitic infections, and hypereosinophilic syndrome [6]. These etiologic causes were also excluded. Given the rarity of EC, no standard treatment protocol has been established so far. For recalcitrant cases where hematuria does not resolve, corticosteroids, antihistamines or antibiotics, combined with transurethral resection are the main options [4]. In our case, the patient received only symptomatic treatment including bladder irrigation and analgesics, without the need for corticosteroids or antibiotics. This conservative approach resulted in complete resolution of symptoms.

To our knowledge, there is no report of a patient with a history of membranous nephropathy who was diagnosed with EC in the English literature. Physicians should be informed about EC and its presentation mimicking malignancy. This report describes a single case, which limits the generalizability of the findings. Further case series or studies are required to better understand the potential association between membranous nephropathy and eosinophilic cystitis.

Conclusion

We present a rare case of eosinophilic cystitis in a patient with membranous nephropathy, which mimicked bladder malignancy. Prompt cystoscopic evaluation and histopathological confirmation are essential to differentiate this benign condition from cancer. This case underlines the need to consider eosinophilic cystitis in the differential diagnosis of hematuria, especially in patients with glomerular disease.

Authors' contributions

V.B.T. was primarily responsible for the conception and design of the case report, conducted the literature review, and drafted the manuscript. O.H. provided critical analysis, contributed to the interpretation of the patient's clinical findings, and revised the manuscript critically for important intellectual content. E.K.B. performed the histopathological analysis, provided insights on the pathology, and reviewed the manuscript. M.Y.K was involved in the clinical care of the patient, collected the clinical data, and contributed to the initial draft. All authors reviewed the final version of the manuscript, approved it for publication, and agreed to be accountable for all aspects of the work.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate
Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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

Competing interests
The authors declare no competing interests.

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