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Benign Yet Alarming: Cystitis Glandularis and Cystica with Gross Hematuria : A Case Report

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ABSTRACT

Introduction: Cystitis glandularis and cystitis cystica are benign proliferative conditions of the bladder mucosa, often arising as a reactive response to chronic irritation or inflammation. While frequently asymptomatic, they can occasionally present with alarming symptoms such as gross hematuria and urinary retention, mimicking malignancy.

Case Presentation: We report the case of a 43-year-old uncircumcised male who presented with acute urinary retention and gross hematuria due to intravesical blood clots. Physical examination revealed suprapubic fullness and a mildly enlarged prostate. A three-way Foley catheter with manual irrigation was required for decompression. Cystoscopic examination showed multiple raised mucosal lesions and pseudopolyps with active bleeding in the posterior bladder wall. Histopathological analysis of the bladder biopsy confirmed the diagnosis of cystitis glandularis and cystitis cystica. The patient was managed conservatively with non-steroidal anti-inflammatory drugs (NSAIDs), bladder irrigation, and increased hydration.

Conclusion: Although benign, cystitis glandularis and cystitis cystica can present with severe urological symptoms such as hematuria with clot retention. Prompt evaluation with cystoscopy and biopsy is essential to exclude malignancy. Conservative management is often effective, but ongoing surveillance is recommended due to the potential for recurrence and the rare risk of malignant transformation.

Keywords: *Cystitis glandularis, cystitis cystica, hematuria, urinary retention, bladder lesion, cystoscopy.*

1. INTRODUCTION

Cystitis glandularis and cystica are benign proliferative lesions of the bladder mucosa, often considered reactive processes to chronic irritation or inflammation.[1–3] While generally asymptomatic, they may present with hematuria, dysuria, or irritative voiding symptoms, and can mimic malignancy both clinically and radiologically.[1] Although these lesions are typically benign, their potential association with urothelial carcinoma, particularly in extensive or intestinal-type cases, necessitates careful evaluation and follow-up.[4] Here, we present a case of a 43-year-old male with painless gross hematuria, ultimately diagnosed with cystitis glandularis and cystica on histopathological examination.

2. CASE PRESENTATION

A 43-year-old uncircumcised male presented to the emergency department with acute urinary retention and gross hematuria. He reported a week history of dark red urine with intermittent passage of blood clots, followed by a sudden inability to void despite a persistent urge. He denied any dysuria, fever, flank pain, trauma, recent strenuous activity, or prior urologic procedures. The patient had no history of lower urinary tract symptoms (LUTS), urinary tract infections, or genitourinary malignancy. He had no comorbidities such as diabetes or hypertension, and there was no family history of urological disease. He was a non-smoker and occasionally consumed alcohol.

On physical examination, the patient appeared uncomfortable with suprapubic fullness suggestive of urinary retention. The external genitalia were normal, uncircumcised, and there was no balanitis or external lesions. Digital rectal examination revealed a normal-size, smooth, non-tender prostate. Abdominal examination confirmed a distended bladder.

Laboratory investigations showed hemoglobin 14.8 g/dL, serum creatinine 1.64 mg/dL, blood urea nitrogen 32 mg/dL, and estimated glomerular filtration rate (eGFR) of 53 mL/min/1.73 m². Urinalysis demonstrated numerous red blood cells without signs of infection. Coagulation profile and liver function tests were within normal limits.

A three-way Foley catheter was inserted, yielding approximately 600 mL of heavily blood-stained urine with multiple clots. Manual bladder irrigation was performed to clear the obstruction. Once stabilized, the patient underwent cystoscopy, which revealed multiple raised mucosal lesions and pseudopolyps with active bleeding predominantly in the posterior bladder wall (**Figure 1**). Biopsy specimens were obtained.

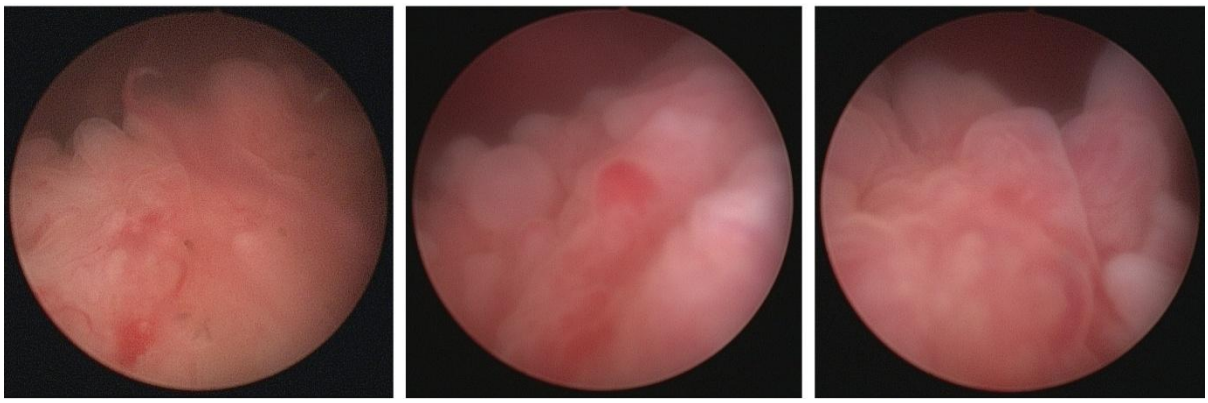

Figure 1. Cystoscopic appearance of the lesions

Histopathological analysis showed bladder mucosal tissue lined by transitional epithelium, with focal invagination Von Brunn's nests are found, along with cystic dilated glands lined by columnar epithelium, some lumens containing eosinophilic material. These findings are consistent with cystitis glandularis and cystica (**Figure 2**).

The patient was managed conservatively with a 4-week course of non-steroidal anti-inflammatory drugs (NSAIDs), increased fluid intake, and intermittent bladder irrigation. There was no evidence of infection, and antibiotics were not indicated. His renal function was monitored and remained stable. At a three-month follow-up, the patient reported complete resolution of hematuria and voiding symptoms.

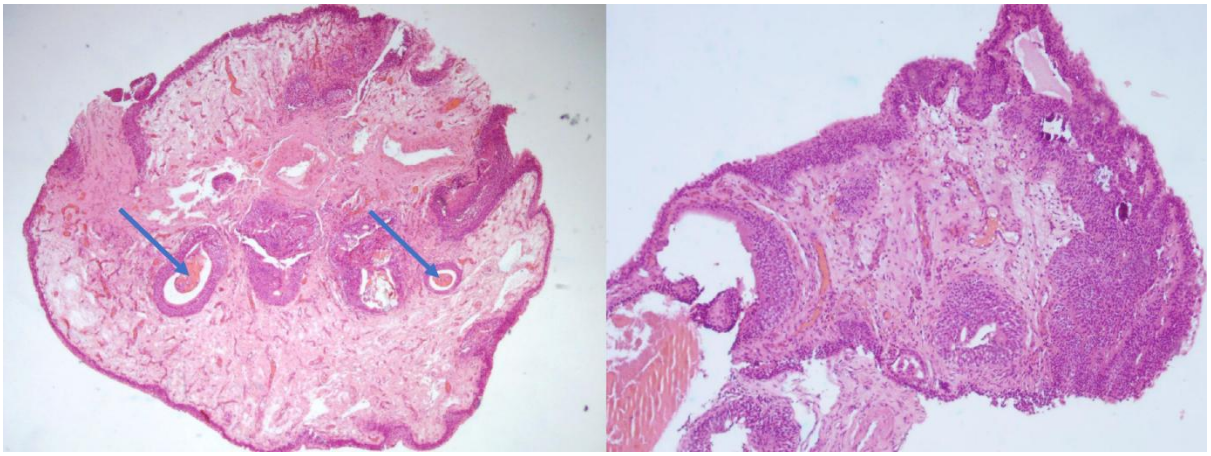

Figure 2. The preparation shows bladder mucosal tissue lined by transitional epithelium, with focal invagination Von Brunn's nests are found, along with cystic dilated glands lined by columnar epithelium, some lumens containing eosinophilic material (arrow). These findings are consistent with cystitis glandularis and cystica.

3. DISCUSSION

Epidemiology and Prevalence

Cystitis cystica et glandularis (CCG) is a common histopathological finding, often discovered incidentally during cystoscopic examinations. While minor microscopic occurrences are extremely prevalent, clinically significant lesions presenting symptoms or large masses are less common. Wiener et al. identified CCG changes in up to 60% of bladder autopsies.[5] Clinical manifestations typically appear in middle-aged adults but have also been documented in pediatric populations.[3,6]

Etiology and Risk Factors

Chronic irritation and inflammation of the bladder mucosa are widely accepted as etiological factors for CCG. Frequent

urinary tract infections, bladder calculi, bladder outlet obstruction, prolonged catheterization, and chronic inflammation are significant risk factors.[7,8] Additionally, factors such as hormonal imbalances and HPV infection have been suggested but remain speculative.[7]

Pathogenesis and Histopathology

CCG development is thought to progress from urothelial hyperplasia through the formation of von Brunn's nests, subsequently undergoing cystic or glandular transformation.[8] Histologically, cystitis cystica shows cystic dilations, while cystitis glandularis exhibits glandular epithelium, sometimes with intestinal-type goblet cells.[1,8]

Clinical Presentation

Most CCG cases are asymptomatic, discovered incidentally. Symptomatic patients may experience irritative urinary symptoms such as frequency, urgency, and dysuria, or obstructive symptoms if lesions are near the bladder neck. Hematuria is also commonly reported.[9] Extensive lesions may mimic bladder neoplasms clinically and radiologically, highlighting the importance of biopsy for accurate diagnosis.[10,11]

Diagnostic Approach

The gold standard for diagnosing CCG is cystoscopic examination and biopsy.[1,7,10] Radiologically, lesions appear as thickened bladder walls or polypoid masses, but definitive differentiation from malignancy requires histopathological examination.[11,12]

Differential Diagnosis

Differentiating CCG from urothelial carcinoma and bladder adenocarcinoma is crucial. Carcinomas typically exhibit cellular atypia, invasion into muscular layers, and higher proliferation markers, distinguishing them clearly from benign CCG.[4,5,8,13] Other benign lesions, such as nephrogenic adenoma or inverted papilloma, are also considered but differ histologically.[8,13]

Management Strategies

Management includes conservative measures addressing underlying inflammation, endoscopic resection for symptomatic relief, and surgical interventions for refractory cases. Administration of anti-inflammatory medicatio is typically first-line for symptomatic management.[1,9,10] Extensive or recurrent cases may necessitate more aggressive approaches, including transurethral resection, partial or radical cystectomy.[1] Surveillance cystoscopy is recommended due to a high recurrence rate.[1]

Prognosis and Malignant Transformation

Controversy regarding malignant potential historically existed, especially concerning intestinal-type cystitis glandularis. However, recent evidence strongly suggests no significant increased risk for malignancy transformation. A study by Agrawal et al. has shown minimal or no progression to carcinoma.[8] While CCG may coexist with bladder cancer, current literature emphasizes its benign nature, advising regular monitoring primarily for recurrence rather than cancer prevention.[4]

4. CONCLUSION

Cystitis glandularis and cystitis cystica, despite being benign entities, can clinically mimic malignancy and alarmingly present with gross hematuria, prompting urgent evaluation. This case underscores the importance of considering these conditions in the differential diagnosis of painless hematuria. Timely cystoscopic biopsy is essential to accurately distinguish benign proliferative lesions from urothelial carcinoma. Conservative medical management and vigilant follow-up effectively manage symptoms and ensure early detection of potential recurrences, ultimately maintaining optimal patient outcomes.

CONFLICT OF INTEREST

There was no conflict of interest to be disclosed

ETHICAL CLEARANCE

Written informed consent was obtained from the patient.

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