Two Cases of Lupus Cystitis with No Bladder Irritation Symptoms

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Abstract

Lupus cystitis is a rare manifestation in systemic lupus erythematosus (SLE); it usually occurs in association with gastrointestinal manifestations. We report two cases of lupus cystitis without bladder irritation symptoms. Both cases developed severe abdominal pain, nausea, and diarrhea and showed no bladder irritation symptoms. The diagnosis of lupus cystitis was made by abdominal ultrasonography and bladder biopsy. The patients were treated with intravenous methylprednisolone pulse therapy followed by oral prednisolone. Their symptoms were ameliorated, and hydroureteronephrosis improved. Thus, when a patient with SLE shows gastrointestinal symptoms, further examinations are required to determine whether the patient has lupus cystitis.

Key words: lupus, cystitis, hydroureteronephrosis

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Introduction

Lupus cystitis is a rare manifestation of systemic lupus erythematosus (SLE). The clinical characteristic is bladder irritation with few abnormal urinalysis results and gastrointestinal symptoms (1). Without early treatment, lupus cystitis can lead to hydroureteronephrosis, resulting in renal failure (2, 3). Here, we report two cases of lupus cystitis without bladder irritation symptoms, both of which were successfully treated by corticosteroid.

Case Report

Case 1. A 27-year-old Woman patient was diagnosed with SLE in 1996 based on a malar rash, photosensitivity, a positive antinuclear antibody titer (1:1,280), anti-dsDNA (17.6 IU/mL), hypocomplementemia (CH50; <10 U/mL), and nephritis (class II World Health Organization morphological classification of lupus nephritis). She was treated with prednisolone (50 mg/day for one month, followed by tapering to 10 mg/day on alternate days), with resulting improvement of her symptoms. In May 2001, she was admitted with complaints of nausea, vomiting, abdominal pain, and diarrhea of two months duration prior to admission. However, she did not complain of bladder irritation symptoms, such as suprapubic pain, urgency, frequency, or nocturia. At the time of admission, laboratory studies showed: erythrocyte sedimentation rate 93 mm/h, C-reactive protein 0.1 mg/dL, leukocytes 3,600/mm$^3$ with lymphopenia 360/mm$^3$, hemoglobin 10.9 g/dL, blood urea nitrogen 20 mg/dL, serum creatinine 1.0 g/dL, total protein 6.6 g/dL, albumin 3.0 g/dL, IgG 2,158 mg/mL, IgA 350 mg/mL, IgM 56 mg/mL, and CH50 19.4 U/mL. Anti-dsDNA titer was 150 IU/mL. Urinalysis showed a specific gravity of 1.015, protein 1 (+), 1-5 erythrocyte sediments per high-power field (HPF), 1-4 leukocyte sediments per HPF, and a sterile culture. Creatinine clearance was decreased (30.2 mL/min). Abdominal ultrasonography showed bilateral hydroureteronephrosis (Fig. 1). The biopsy of the bladder revealed chronic interstitial cystitis with diffuse edema and infiltration of lymphocytes and plasma cells (Fig. 2). The patient was diagnosed as having lupus cystitis. Double-J-shaped ureter catheters were inserted in the bilateral ureter due to obstructive uropathy. Then, methylprednisolone pulse therapy (750 mg/day for 3 days) was initiated, followed by the oral administration of prednisolone.
Figure 1. Ultrasonography of the right kidney shows hydroureteronephrosis (arrow).

Figure 2. Bladder biopsy demonstrating chronic interstitial cystitis with diffuse edema and infiltration of lymphocytes and plasma cells (Hematoxylin and Eosin staining, x100).

Figure 3. A: Ultrasonography of the right kidney shows hydroureteronephrosis (arrow). B: Computed tomography (CT) of the abdomen shows bilateral hydronephrosis.

Case 2. A 33-year-old female patient was diagnosed with SLE in 2001 based on photosensitivity, a malar rash, polyarthralgia, lymphopenia (860/mm$^3$), a positive antinuclear antibody titer (1:1,280), and anti-dsDNA (16.0 IU/mL). She was treated with prednisolone (5 mg/day) for 6 months, and her symptoms gradually improved. In February 2003, she began to experience abdominal pain and diarrhea, for which she was admitted to our hospital. At the time of admission, the patient’s urine volume was decreased. However, she did not complain of any bladder irritation symptoms. Laboratory tests showed: erythrocyte sedimentation rate 16 mm/h, C-reactive protein 0.3 mg/dL, leukocytes 4,400/mm$^3$ with lymphopenia 800/mm$^3$, hemoglobin 11.5 g/dL, blood urea nitrogen 35 mg/dL, creatinine 1.3 g/dL, total protein 7.2 g/dL, albumin 4.2 g/dL, and CH50 20.4 U/mL. Anti-dsDNA titer was 16 IU/mL. Urinalysis showed a specific gravity of 1.012, protein (+), 1-4 erythrocyte sediments per high-power field (HPF), 1-4 leukocyte sediments per HPF, and a sterile culture. Colon fiberscopy showed non-specific colitis. Both ultrasonography and computed tomography of the abdomen showed bilateral hydronephrosis (Fig. 3). She refused a bladder biopsy. Based on these results, we diagnosed the patient’s illness to be lupus cystitis and treated her with methylprednisolone pulse therapy (1,000 mg/day for 3 days), followed by the oral administration of prednisolone (60 mg/day). Within one week, the patient’s symptoms had rapidly subsided and her urine volume was recovered. One month after admission, abdominal ultrasonography showed no hydronephrosis, and then prednisolone was tapered.

Discussion

SLE is an autoimmune disease characterized by multiple organ involvement. However, bladder disease is an uncommon manifestation in patients with SLE. Lupus cystitis was first reported by Orth et al in 1983 (1). It is characterized by bladder irritation symptoms such as suprapubic pain, urgency, frequency, and nocturia, reduction of urinary bladder volume, and hydroureteronephrosis with few abnormal results seen on urinalysis. In addition, gastrointestinal manifestations such as abdominal pain, nausea, vomiting, and diarrhea are seen in almost all patients with lupus cystitis (2-5). Although the reason for the association between cystitis and gastrointestinal manifestation remains unclear, it is believed that a common autoantigen is present in both the bladder and gastrointestinal wall that plays an important role in the patient with lupus cystitis (6). Of note, it is difficult to completely deny the possibility of the presence of perito-
nitis as a cause of gastrointestinal manifestations in both of the present patients.

Both of our patients developed gastrointestinal symptoms without bladder irritation symptoms at the onset of lupus cystitis and were diagnosed with lupus cystitis based on the results of ultrasonography, computed tomography, and, in one case, the histology of a bladder biopsy. In trying to determine why these patients did not show bladder irritation symptoms, we hypothesized that the symptoms from lupus cystitis in the interstitium of the bladder wall were too mild to be noticed compared with other cystitis and/or severe gastrointestinal symptoms, which masked them. In addition, both patients had almost normal urinary examinations. In support of this theory, Alarcon-Segovia et al reported that interstitial cystitis was seen histologically in 11 out of 35 necropsy cases of SLE, but no patients had obvious bladder irritation symptoms while alive (7). This suggests that subclinical interstitial cystitis is not rare in SLE patients. Therefore, when a patient with SLE complains of gastrointestinal symptoms, even if there are no bladder irritation symptoms, lupus cystitis should be considered. However, as in the report of Min et al (8) and a few case reports that lupus cystitis developed with post-renal failure without any therapy, it is thought that the frequency of lupus cystitis may not be so high.

Because patients with an early diagnosis of lupus cystitis respond well to treatment with corticosteroid, our patients might be in an early stage of lupus cystitis, thus they might have no bladder irritation symptoms. It has also been reported that methylprednisolone pulse therapy is important in achieving an improvement of lupus cystitis (9), as was the case with our patients. However, when prompt therapy using steroids is delayed due to the late diagnosis of lupus cystitis, the patient might develop progressive bladder fibrosis, resulting in irreversible hydroureteronephrosis and renal failure (3, 5). Thus, to prevent irreversible renal failure, early diagnosis and treatment are important for the patient with lupus cystitis.

The bladder biopsy of case 1 in the present study showed typical interstitial cystitis such as diffuse edema and inflammatory cell infiltration and no significant vasculitis. Although the pathogenesis of lupus cystitis has not been clear, immune complex-mediated vasculitis has been suggested (10, 11). Furthermore, the high association of interstitial cystitis and hydroureteronephrosis reveals a possible common smooth muscle dysmotility due to vasculitis and/or common autoantibodies against the smooth muscle (12).

In conclusion, lupus cystitis may not be as rare as previously thought. When a patient with SLE shows gastrointestinal symptoms of unknown origin, the diagnosis of lupus cystitis should be kept in mind, and further examinations such as ultrasonography are necessary for early diagnosis to prevent renal failure.

References