

Dermatomyositis: A Rare Extra-intestinal Manifestation of Ulcerative Colitis

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Inflammatory myositis as an extra-intestinal manifestation of inflammatory bowel disease (IBD) is rare. Coexistence of immuno-mediated diseases in patients with IBD and myositis suggests a common etiopathogenic mechanism underlying these conditions. The current report refers to a rare case of a 45-year-old Korean female with ulcerative colitis (UC) who developed dermatomyositis. She presented with skin rash and proximal muscle weakness, and her disease activity of UC was in remission state. Electromyography, magnetic resonance imaging, and deltoid muscle biopsy were performed. She was diagnosed with dermatomyositis associated with UC and treatment with glucocorticoids and azathioprine resulted in improvement in muscle power and skin rash. Clinicians should be aware of this unusual extra-intestinal manifestation. (*J Rheum Dis* 2016;23:183-186)

Key Words. Inflammatory bowel diseases, Ulcerative colitis, Myositis, Polymyositis

INTRODUCTION

Ulcerative colitis (UC), an inflammatory bowel disease (IBD) of unknown etiology, is frequently associated with extra-intestinal manifestations [1]. Common sites include the joints (arthritis/arthritis), skin (erythema nodosum, pyoderma gangrenosum), and eyes (iritis, uveitis) [2], while muscular diseases such as myositis have rarely been reported. Only a few cases of myositis associated with UC have been described in the literature [3]. We report on a case of a middle-aged woman with quiescent UC who developed dermatomyositis responsive to combined treatment with glucocorticoid and immunosuppressive agent. To the best of our knowledge, this is the first reported case of dermatomyositis associated with UC in Korea.

CASE REPORT

We report on a case of a 45-year-old woman with UC since 2012, diagnosed based on colonoscopic appearance

and biopsy and maintained on mesalazine 1 g suppositories daily. The patient had been in remission for 1 year when she presented in January of 2014 with skin eruptions and both upper and lower limb proximal muscle weakness. She had not taken any medication associated with myopathy for 1 year. Colonoscopic findings five months prior to this event were normal. Two months before admission, she had developed an erythematous rash on her proximal extremities, neck, and eyelid, and eyelid swelling. She complained of significant pruritus, and mild myalgia on both upper arms and thighs. Three weeks before admission, she had begun to have difficulty climbing stairs, and lifting packages. The patient did not complain of arthralgia or inflammatory back pain.

On physical examination, she had Medical Research Council (MRC) scale grade 4 symmetric weakness of the proximal upper and lower extremities, and full strength in distal limbs.

No sensory disturbance was detected. And there was no evidence to suggest spondyloarthropathy.

Widespread macular erythematous patches of both up-

Received : July 22, 2015, **Revised :** August 17, 2015, **Accepted :** August 24, 2015

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pISSN: 2093-940X, eISSN: 2233-4718

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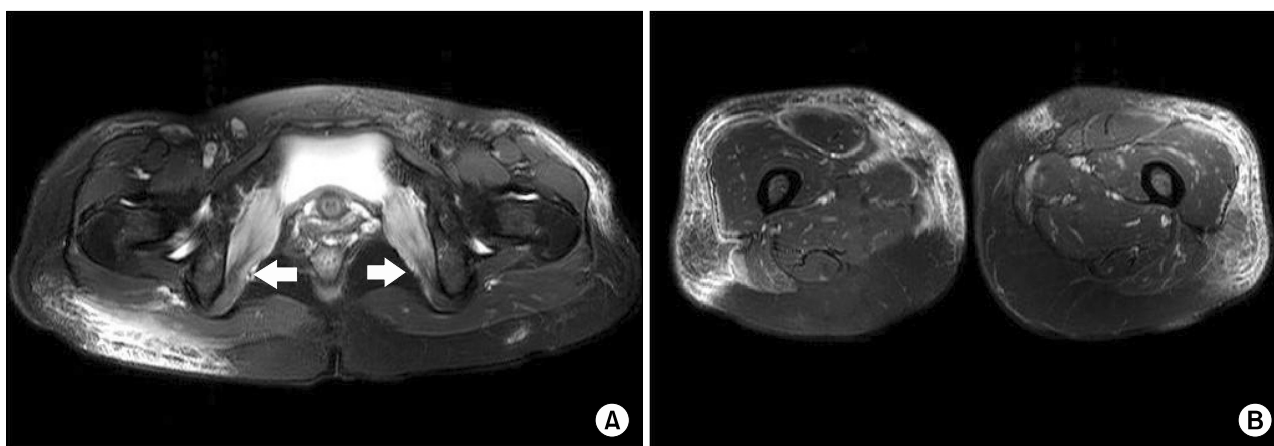


Figure 1. (A) Axial T2 weighted image with fat saturation showed bilateral symmetrical diffuse increased signal intensity in both obturator internus muscles (arrows). (B) Axial T2 weighted image with fat saturation showed epimysial accentuation of both vastus muscles with diffuse interstitial edema in the subcutaneous fat layer on both thighs.

per arms and thighs were noted, with no nail findings. A V-sign on the neck and heliotroph erythema and swelling of eyelid were observed. Physical examination was otherwise unremarkable, with normal vital signs.

Laboratory tests showed the following: white blood cell count was $4,110/\text{mm}^3$, hemoglobin was 12.6 g/dL, and platelet count was $272,000/\text{mm}^3$. Creatine phosphokinase (CPK) was increased to 434 IU/L (26 to 174 IU/L) and lactate dehydrogenase (LDH) was increased to 624 IU/L (240 to 480 IU/L), while serum aldolase level was within normal range (<7.5 U/L). Erythrocyte sedimentation rate value was elevated at 66 mm/h (0 to 30 mm/h) and C-reactive protein was slightly increased to 0.56 mg/dL (0 to 0.5 mg/dL). The level of antinuclear antibodies was 1:40 positive and both anti-Jo-1 antibody and anti-neutrophil cytoplasmic antibody were negative. Thyroid-stimulating hormone, thyroxine was within normal range. Computed tomography of the abdomen, pelvis, and chest was normal.

On electromyography (EMG), only the presence of short potentials of small amplitude at the level of the right deltoid muscle was observed. These findings were suggestive, but not conclusive, of a diagnosis of inflammatory myositis. Nerve conduction studies were normal. Magnetic resonance imaging (MRI) of both thighs showed symmetrical diffuse increased signal intensity in T2 weighted images with fat saturation in both obturator internus muscles (Figure 1A) and epimysial accentuation of both vastus muscles with diffuse interstitial edema in the subcutaneous fat layer on both thighs consistent with inflammatory myositis (Figure 1B). Biopsy from the left

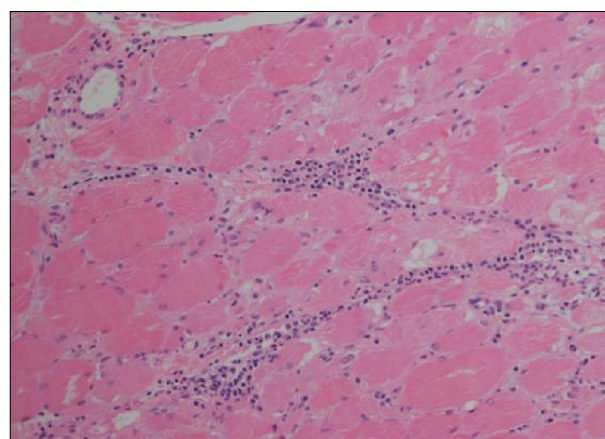


Figure 2. Biopsy from the left deltoid muscle revealed a size variation of myofibers and multifocal lymphocyte infiltration in the perimyseal area and perivascular area. Some degenerating and regenerating myofibers are shown. There is no evidence of vasculitis (H&E, $\times 100$).

deltoid muscle showed multifocal lymphocytic perivascular infiltration within perimyseal spaces, and perimyseal lymphocytic infiltration had occurred. Multiple degenerated and regenerated myofibers were also observed. In conclusion, muscle biopsy results were consistent with inflammatory myositis (Figure 2). No other extra-intestinal manifestations were observed.

Once the diagnosis of dermatomyositis according to criteria of Bohan and Peter [4] was established, the patient was initially treated with oral methylprednisolone of 40 mg daily. Thus, azathioprine 50 mg daily was added, with stepwise reduction of methylprednisolone. Symptoms of myopathy and skin manifestations showed a gradual de-

crease until complete disappearance, while muscle strength had improved considerably 3 months after starting therapy. Serum levels of CPK and LDH returned to normal values. Treatment resulted in complete recovery of skin manifestation and return of muscle power to normal. Disease activity of UC was also in remission state for more than 1 year.

DISCUSSION

Inflammatory myopathy is a rare form of extra-intestinal manifestation (EIM) in IBD. UC appears to be less commonly associated with an inflammatory myopathy than Crohn's disease [3]. Dermatomyositis is a particularly rare EIM of UC. The earliest case of myositis associated with UC was reported by Oshitani et al. [5], who described dermatomyositis and mononeuritis multiplex in UC and Basedow's disease. Two cases have been reported [5,6], and this is the first case of dermatomyositis with UC reported in Korea.

The relationship between EIMs and IBD was recognized several years ago, but pathologic factors remain unclear, warranting further investigation. There are some hypotheses on the pathogenetic autoimmune mechanisms of EIM in IBD patients. According to a common immune-mediated mechanism hypothesized by some authors, bowel inflammation and mucosal damage can lead to the release of antigens stimulating an immune response. The release of intestinal antigens and subsequent production of antibody-forming immune complexes are responsible for muscle injury [7,8].

Other mechanisms suggested by some authors include an immune response initiated by an infectious agent, secondarily driven against body components such as large bowel and striated muscles. Various infectious agents, including persistent infection with measles virus, paramyxovirus, *Mycobacterium paratuberculosis*, herpes virus, and *Escherichia coli*, have been implicated in the pathogenesis of IBD or myositis. It can probably initiate antigen driven production of autoantibodies (anti-Jo-1), resulting in generation of myositis [9,10]. Therapy for IBD with glucocorticoids, or azathioprine could also result in muscle damage [9]. However, this does not explain myositis that develops before IBD and the same was not true for this case [10]. Regarding disease activity, in some reported patients, myositis is associated with an acute exacerbation of IBD, but activity of bowel disease does not appear to be mandatory for the onset of myositis. In some

IBD cases, myopathy was diagnosed in a quiescent phase [3], and the current patient was also in clinical remission of UC when symptoms of myositis appeared. However, symptoms associated with myositis, such as fever, myalgia, muscle fatigue, and weakness may be considered as a part of the clinical manifestations of IBD in patients with active disease. Thus, misinterpretation can occur in diagnosis of myopathy in association with disease activity of IBD and caution is required [3].

Patients with IBD are often under treatment with systemic steroids; therefore, inflammatory myopathy must be differentiated from steroid myopathy, which may also induce an increase in serum CPK levels. These conditions may be differentiated by muscle biopsy. In the absence of histological evidence, if the myopathy is secondary to steroids, dose reduction of steroids should be followed by a rapid drop in serum CPK levels, while in the case of myositis complicating IBD, myopathy can either progress or remain unchanged [3].

Inflammatory myopathy is considered a rare EIM of IBD, but in fact may be a more common occurrence than reported in patients with IBD. As already mentioned, symptoms of inflammatory myopathy may overlap and be concealed with clinical manifestations of active IBD. In addition, diagnosis of subclinical myositis in IBD patients has also been reported with the finding of elevated serum CPK levels and obvious pathological changes in biopsy specimens from striated muscles in the absence of typical symptoms [11]. To put this in perspective, serum CPK should be measured in patients with IBD who show symptoms of myalgia and weakness.

Treatment of inflammatory myopathy is usually based on oral administration of glucocorticoids, either alone or in combination of steroids with immunosuppressive agents, such as azathioprine, methotrexate, or cyclosporine [7,12,13]. The efficacy of these immunosuppressive agents in the treatment of inflammatory myopathy supports the hypothesis of a common mechanism of myositis and IBD.

SUMMARY

This case report shows that the diagnosis of inflammatory myositis should be considered in IBD patients complaining of myalgia or muscular weakness. It can be speculated that the true prevalence of myositis in IBD is underestimated because nonspecific symptoms are not directly correlated with myositis.

Inflammatory myositis should be strongly suspected in UC patients with muscle weakness and elevated serum CPK levels, which may be helpful in the early diagnosis and appropriate treatment of UC. Immune mediated myositis should be considered as an important differential diagnosis for myopathy occurring in IBD secondary to glucocorticoid treatment [14]. Early recognition of these extra-intestinal manifestations should be helpful in guiding therapy that will reduce overall morbidity in affected patients. Hence, an appropriate approach to musculoskeletal manifestations in IBD requires close cooperation between gastroenterologists and rheumatologists.

ACKNOWLEDGMENTS

We thank Dr. Ji young Lee for the preparation and interpretation of MRI images.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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