PROC (BAYL UNIV MED CENT)
2021;34(1):116–117

https://doi.org/10.1080/08998280.2020.1821589

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Refractory dermatomyositis–systemic lupus erythematosus overlap syndrome and response to tofacitinib

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ABSTRACT

Dermatomyositis is an autoimmune condition that commonly presents in the form of an overlap syndrome with other rheumatic diseases. The overlap between syndromes with highly variable symptomology makes treatment difficult. We present a case of a 39-year-old woman who presented with a facial rash, arthralgias, and lower-extremity edema and steadily progressed to develop severe proximal muscle weakness and hair loss over the course of a 2.5-month hospitalization. After diagnostic testing, she was found to have a dermatomyositis–systemic lupus erythematosus overlap syndrome. Her symptoms were refractory to initial medical management but finally resolved once she was switched to tofacitinib.

KEYWORDS Dermatomyositis; steroid-induced myopathy; systemic lupus erythematosus; tofacitinib

Dermatomyositis is an autoimmune condition classically characterized by symmetric proximal muscle weakness, inflammatory muscle changes, and dermatologic abnormalities. Several studies have shown that the inflammatory myopathies, such as dermatomyositis, commonly overlap with other connective tissue disorders, significantly complicating the diagnosis.[1,2] In this article, we present the difficulties of diagnosing dermatomyositis when it overlaps with another autoimmune disease, the challenges of management, and a successful treatment option.

CASE PRESENTATION

A 39-year-old woman with known nonalcoholic fatty liver disease, iron deficiency anemia, and peripheral venous insufficiency presented for the evaluation of a facial rash, arthralgias, and worsening lower-extremity edema. The arthralgias and edema had been present intermittently for a year but had worsened over the previous month. She reported no history of a rash and had already tried some over-the-counter moisturizers without relief. Physical exam revealed 1+ bilateral edema to the mid calves and an erythematous, maculopapular rash across the nose, forehead, and behind the ears. The rash was initially treated with hydrocortisone 2.5% and then ketoconazole 2% with no improvement and her peripheral edema persisted despite the use of compression stockings and 20 mg of daily furosemide. The patient followed up in the clinic 3 months later with worsening lower-extremity edema and facial rash, along with tender, subcutaneous nodules in the abdomen, axillae, and groin. Initial workup showed a C-reactive protein level of 2.2 mg/L, erythrocyte sedimentation rate of 87 mm/hr, positive anti-nuclear antibody 1:1280 in a speckled pattern, and microcytic anemia. A punch biopsy of her rash showed atrophic epithelium with dyskeratotic keratinocytes, vacuolar interface changes, superficial perivascular and lichenoid inflammation, and pigment incontinence consistent with systemic lupus erythematosus (SLE). The patient was started on prednisone 40 mg daily for a 2-week taper to 10 mg and hydroxychloroquine 200 mg daily with marked improvement in symptoms. Further laboratory workup was significant for a positive SSA/RO but an otherwise negative antibody panel.

Upon tapering of her prednisone, the patient was subsequently hospitalized for acute worsening of her initial symptoms with profound muscle weakness and peripheral edema. She also developed progressive dysphagia, left-sided ptosis, and worsening of her rash with normal acute brain imaging. The creatinine kinase was 2775 U/L; aldolase, 14.8 U/L; aspartate aminotransferase, 452 U/L; and alanine

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The authors have no conflicts of interest to disclose. The patient gave permission for this case to be published.
Received July 7, 2020; Revised August 27, 2020; Accepted September 4, 2020.

aminotransferase, 120 U/L. Electromyography revealed a diffuse irritative myopathic process with significant decrement on repetitive stimulation, consistent with dermatomyositis. Magnetic resonance imaging of the cervical spine showed diffuse, symmetric hyperintensity and edema in the muscles throughout the cervical region, suggestive of inflammatory polymyositis. The patient's dose of prednisone was raised to 60 mg daily. She improved and regained muscle strength but regressed after a 50-day course of prednisone due to steroid-induced myopathy. She was tapered down on prednisone, initiated on mycophenolate, and discharged with persistent weakness after a 2.5-month hospitalization.

She regained the ability to walk unassisted in rehabilitation but continued to have hair loss, arthralgias, myalgias, and a diffuse rash of her upper extremities, chest, and face. Mycophenolate was stopped and switched to 11 mg of daily tofacitinib. Since the addition of tofacitinib, the patient has experienced substantial improvement with regained muscle strength, hair regrowth, resolution of her rash, and minimal arthralgias. After 6 months of follow-up, her symptoms remained in remission and her dose of prednisone was able to be tapered down from 40 mg to 2.5 mg daily.

DISCUSSION

Systemic glucocorticoids are the current mainstay of treatment for dermatomyositis. They have been shown to help patients regain muscle strength and decrease the complications associated with the disease.[3] However, prolonged use of high-dose glucocorticoids can often result in steroid-induced myopathy, which mimics the weakness of dermatomyositis. This can create a difficult diagnostic scenario, as was the case for our patient.[4] Ultimately, the switch to tofacitinib proved to be the key in improving our patient's lingering rash, weakness, and arthralgias. Tofacitinib is a janus kinase inhibitor that modulates important aspects of the immune response through blockade of cytokines and interferon; this pathway has been shown to play a prominent role in both SLE and dermatomyositis.[5–7] Recent case series have reported the efficacy of tofacitinib in both refractory dermatomyositis and SLE separately, but this is the first report on its efficacy in dermatomyositis-SLE overlap.[8,9] This case illustrates the diagnostic challenges of dermatomyositis overlap syndromes, shows the potential of steroid-induced myopathy to obscure response to therapy, and offers evidence of the efficacy of tofacitinib in both reducing symptoms and overall steroid burden in SLE-dermatomyositis overlap.

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