

Overlap of Psoriatic Arthritis and Dermatomyositis

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Abstract

Psoriatic arthritis is an inflammatory arthritis, most commonly occurring several years after the onset of psoriasis. Psoriatic arthritis is associated with many comorbidities, including diabetes mellitus, nonalcoholic fatty liver disease, fibromyalgia, and cardiovascular disease. Dermatomyositis is an inflammatory myopathy primarily affecting the skin and muscles. As per literature review, cases of psoriasis and dermatomyositis have been reported. In most published cases, the courses of these diseases develop independently. This is the case of a 45-year-old woman initially diagnosed with psoriatic arthritis who developed concurrent dermatomyositis. The methods used were PubMed search and UpToDate search.

Keywords

dermatomyositis, inflammatory myopathy, psoriatic arthritis, psoriasis

Introduction

Psoriatic arthritis (PsA) is a seronegative spondyloarthropathy that can develop in a quarter of patients with psoriasis. Its prevalence in the general population is estimated at 0.05% to 0.25%.¹ Typically the skin disease precedes the arthritis. Clinical presentation includes pain in the axial or peripheral joints, dactylitis, enthesitis, and skin and nail lesions.² Psoriatic arthritis is associated with many comorbidities, including diabetes mellitus, nonalcoholic fatty liver disease, fibromyalgia, and cardiovascular disease.³

Dermatomyositis (DM) is a myopathy, with inflammation of both the muscle and skin. Clinical presentation includes inflammation of the skin, such as erythema of the face (heliotrope rash), periorbital edema, anterior upper chest (V-sign), and Gottron papules on the hands and fingers.⁴ Patients also experience painless proximal weakness, including impaired walking, climbing stairs, and lifting their arms. Dermatomyositis affects females more than males at a ratio of 2:1. There is a higher incidence rate of malignancy in patients with DM compared with the general population, with cancer occurring in about 30% of cases of those with DM.⁵

Case Presentation

A 45-year-old Hispanic female with PsA, nonalcoholic steatohepatitis (NASH), and history of gastric sleeve presents with worsening fatigue, hip pain, and lower extremity weakness. She reports progressive difficulty combing her hair, rising from a chair, and squatting. Physical examination revealed tenderness and swelling in the bilateral wrists, proximal interphalangeal joints, distal interphalangeal joints, and ankles



Figure 1. Swelling of proximal interphalangeal and distal interphalangeal joints, consistent with psoriatic arthritis.

(Figure 1). Neuromuscular strength of upper extremity was 3/5 and lower extremity was 3/5.

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Received July 2, 2021. Revised October 4, 2021. Accepted October 12, 2021.

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Table 1. Laboratory Values of the Patient During Her Disease Course.

Laboratory Test	Initial visit	After prednisone course	On azathioprine and mycophenolic acid	On methotrexate	Reference value
Creatine kinase	1181	438	518	464	26-176 U/L
Anti-Jo antibodies	>8.0				1.0 AI
Antimitochondrial antibodies	26.5				<0.1 units
Antismooth muscle antibodies	36				19 units or less

Her medications included diclofenac-sodium 75 mg twice a day and etanercept 50 mg subcutaneous injection once weekly for PsA. Patient was previously on secukinumab, apremilast, adalimumab and prednisone, all of which failed to provide adequate long-term management.

Basic metabolic panel, complete blood count, and erythrocyte sedimentation rate were normal. Rheumatoid factor and anticyclic citrullinated peptide antibodies were negative. Autoimmune panel demonstrated elevated antimitochondrial antibodies of 26.5 and elevated antismooth muscle antibodies of 36. Elevated creatine kinase (CK) level of 1081 and positive anti-Jo antibodies (>8.0) made newly diagnosed inflammatory myositis likely (Table 1). Magnetic resonance imaging of the thigh muscles with contrast showed symmetric edema and myofascial enhancement of the anterior and posterior compartment of the thigh.

After detailed discussion with the patient, who was very reluctant to start corticosteroid treatment due to fear of weight gain, she finally agreed to start on prednisone 30 mg daily and azathioprine 50 mg twice a day for inflammatory myositis. This regimen resulted in significant reduction in CK and joint pain. Prednisone was tapered by 10 mg each week. Patient had finished steroid taper after a month. Azathioprine was then switched to mycophenolic acid 500 mg twice a day due to lack of response. Methotrexate was avoided due to history of NASH. Patient was informed that it was likely that prednisone was significantly helping to control her disease. Despite completing steroid treatment and being solely on mycophenolate, she continued endorsing minimal relief of joint pain after 6 months. Because she declined to restart prednisone or any intravenous disease-modifying antirheumatic drugs (DMARDs), mycophenolic acid dosage was increased to 500 mg 3 times daily.

Patient was later referred to a higher level tertiary care center in Los Angeles, California, for confirmatory muscle biopsy. At this facility, DM became a more likely diagnosis due to mechanic's hands finding appreciated by the outside rheumatologist (Figure 2). Although the diagnosis of DM is confirmed by muscle biopsy, this facility deemed it unnecessary to perform a biopsy and decided to proceed with treatment. She was started on methotrexate 20 mg once weekly for DM, achieving adequate response.

Discussion

This case had a complicated course, in that this patient required multiple medication regimens for adequate control

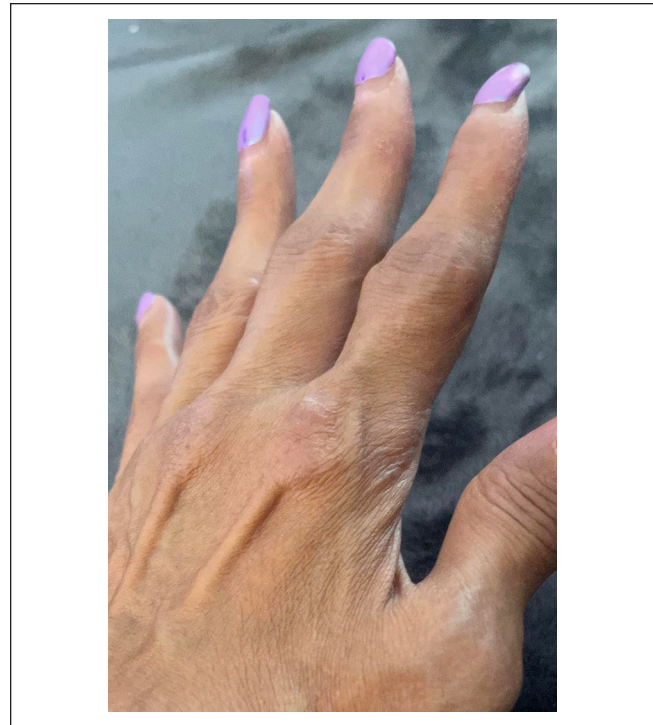


Figure 2. Roughening and cracking of skin on tips and sides of fingers, consistent with mechanic's hands.

of PsA and DM. In addition, treatment was complicated by her refusal to start IV medications, continuation of corticosteroids, and other DMARDs. Through literature review, most patients with this presentation of PsA and DM generally responded well to steroids alone. In our case, this patient had a good initial response to corticosteroids. However, her symptoms relapsed and required the use of DMARDs. This case demonstrates that treatment for these concurrent diseases was not straightforward. Her course of PsA and DM required multiple regimens before she achieved partial symptomatic control. Given the overlap of treatment for PsA and DM, initiating both corticosteroids and immunosuppressants at the onset of diagnosis of these concurrent diseases is recommended. Patient education of their diagnosis and treatment options is key. More research and clinical trials should be done to further understand the overlap of PsA and DM and to further improve treatment.

As per literature review, there have been reported cases of patients with coexistent DM and psoriasis. Both conditions

have an independent disease course, as reported in all cases.⁶ Patients with long-standing psoriasis then later develop DM or its subtype, with response to immunosuppressant medication.^{7,8} There is concern that PsA when part of an overlap syndrome can lead to negative predictive outcomes with their corresponding autoimmune disease.

An important consideration with newly diagnosed DM is the risk for malignancy. Within the first 3 years of diagnosis, there is a 6-fold higher risk of malignancy in these patients compared with the normal population. Malignancies associated include breast, lung, colorectal, bladder, pancreatic, and ovarian cancers.⁹ Several risk factors have been associated with malignancy in DM patients, including male gender, older age at onset, absence of interstitial lung disease, resistance to treatment, and severe skin manifestations.¹⁰ Antibodies associated with increased risk include the presence of antinuclear matrix protein-2 and anti-transcription intermediary factor (TIF)-1-gamma. Studies have varied definitions of older age, ranging between 40 and 50 years of age. The presence of interstitial lung disease has been proposed as a protective factor against malignancy.¹¹ Although there has not been a consensus on malignancy screening guidelines for these patients, it is important to discuss the risk and benefits of these screenings and to participate in shared decision-making. Regarding this patient, her age and complicated disease course due to resistance to multiple treatment regimens are risk factors for malignancy. As the frequency of malignancy has been reported to occur within 3 years after diagnosis, this patient would likely benefit from cancer screening. Routine preventative screening, such as mammogram, pap smear, and colonoscopy, should be performed, given her age. As DM is associated with interstitial lung disease, this patient should undergo computed tomography of the chest. As this patient had a complicated disease course, she should be carefully monitored for treatment response and for any relapse or signs of malignancy.

Acknowledgments

The authors as listed have no acknowledgements to state at this time.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ethics Approval

Ethical approval to report this case was obtained from IRB from Kern Medical for study #20080 on December 12, 2020.

Informed Consent

Written informed consent was obtained from the patient for their anonymized information to be published in this article.

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