

BRIEF ARTICLES

Adult-Onset Still's Disease Presenting as an Atypical Cutaneous Eruption

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ABSTRACT

Adult-onset Still's disease classically presents with high fevers, arthralgias, leukocytosis, and an evanescent eruption. There are, however, a known subset of patients who develop an atypical eruption with persistent erythematous to violaceous papules and plaques. Here, we present the case of a white female in her 40s who presented with 2 years of spiking fevers, arthralgias, and a fixed pruritic eruption with erythematous plaques with overlying scale and linear accentuation. She was initially treated with oral prednisone, anakinra, and methotrexate. Due to persistent symptoms, she was switched to adalimumab with significant relief of symptoms. Prompt recognition of adult-onset Still's disease with this atypical eruption may help prevent delayed or missed diagnosis and allow for early, appropriate intervention.

INTRODUCTION

Adult onset Still's disease (AOSD) is a rare disorder characterized by spiking fevers, a characteristic evanescent eruption, and arthralgias.¹ Serum studies classically show an elevated ferritin and leukocytosis (classically neutrophilia) without an elevated ANA or rheumatoid factor.² There are variable reports of incidence and prevalence, some suggesting a bimodal age of onset peaking at 15-25 and again at 36-46.² Here, we report the case of a female in her 40s with adult-onset Still's disease with an atypical eruption.

CASE REPORT

A white female in her 40s presented with a 2-year history of a pruritic eruption, 1 year history of arthralgias, and recent night sweats with daily fevers up to 102°F. She had been previously diagnosed with undifferentiated connective tissue disease vs dermatomyositis and was treated with courses of topical and oral steroids, hydroxychloroquine, and mycophenolate mofetil, all without significant improvement in her symptoms. Physical exam revealed brightly erythematous thin plaques with fine scaling, many with linear accentuation, located over the trunk and extremities, with some involvement of her face and scalp, she also had scattered edematous 2-6 mm erythematous transient papules on the trunk and extremities (Figure 1). Notably, her

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eyelids were clear and nailfolds were within normal limits. She had leukocytosis (28K/ μ L [3.5-10.5]) with neutrophilia. Aldolase (24.6u/L [<8.2]) and ferritin (1379.9ng/mL [11-37]) were elevated. ANA, rheumatoid factor, CCP, C3/C4, CPK, SSA, SSB, Anti-Jo, Anti-Sm were all within normal limits. Punch biopsies of representative lesions on the abdomen and right lower extremity were performed (Figure 2). Histopathological analysis revealed margination of neutrophils with marked perivascular mononuclear cell infiltrate with eosinophils and occasional dyskeratotic keratinocytes within the epidermis.

Given her constellation of symptoms, elevated ferritin, leukocytosis, and histopathologic findings, she was diagnosed with AOSD. She was initially treated with oral prednisone 40mg daily, which was increased two weeks later to 60mg daily for persistent symptoms with the addition of anakinra 100mg daily. Though she experienced moderate relief of symptoms, her rash and arthralgias persisted. One month later, methotrexate was added at 12.5mg weekly and gradually increased to 20mg weekly to allow for a prednisone taper. Again, her rash and arthralgias remained and any mild prednisone taper caused a flare of symptoms. Thus, anakinra was deemed ineffective, discontinued, and adalimumab, 40mg every 2 weeks, was started, instead. After two months, she was able to completely taper off the prednisone and her rash and fevers have resolved with only occasional persistent arthralgias.

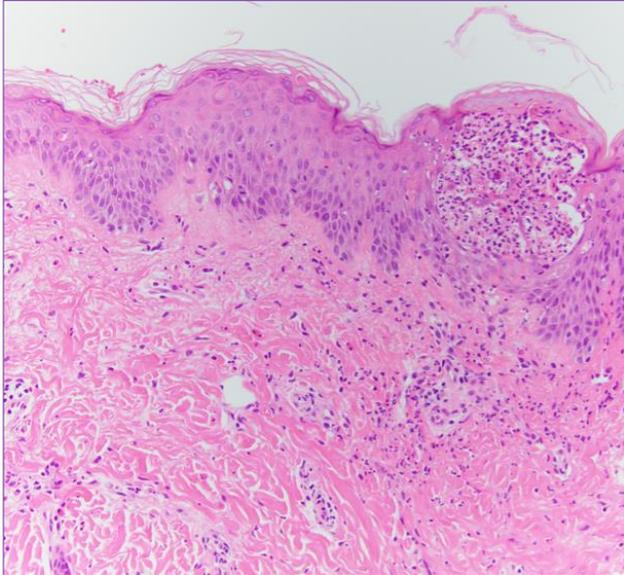
Figure 1a. Anterior trunk demonstrating photoaccentuated erythematous plaques and papules, some with overlying scale.



Figure 1b. Upper back and flanks demonstrating erythematous plaques and papules with linear accentuation and overlying scale. Additionally, edematous erythematous transient papules can be seen in the mid and lower back.



Figure 2. Hematoxylin and eosin (10x) stained specimen demonstrating a marked neutrophilic infiltrate and scattered dyskeratotic necrotic keratinocytes in the epidermis.



DISCUSSION

To diagnosis AOSD, the classic Yamaguchi criteria define 4 major and 5 minor criteria.³ Diagnosis requires meeting 5 criteria, with at least 2 major.

Major Criteria:

1. High fever >1 week
2. Arthralgias > 2 weeks
3. Granulocytic leukocytosis > 10,000/ μ l
4. Characteristic non-pruritic salmon colored (evanescent) rash

Minor Criteria:

1. Sore throat
2. Lymphadenopathy
3. Hepatomegaly or splenomegaly
4. Abnormal liver function tests
5. Negative tests for RF and ANA

Histopathologic analysis of the classic evanescent AOSD eruption reveals a neutrophilic infiltrate below an unremarkable

epidermis, resembling neutrophilic dermatosis.⁶ However, in atypical cutaneous eruptions of AOSD, often described as persistent pruritic eruptions, histopathology may also show dyskeratotic keratinocytes in the upper epidermis.⁶ Clinically, this patient had a persistent scaling linear eczematous eruption, accentuated in photo distributed areas, as well as an urticarial “evanescent” eruption. Her photo-accentuated eruption of the face and chest, an initial non-specific biopsy and an elevated aldolase raised suspicion for dermatomyositis. However, she did not have a positive ANA, muscle weakness, or characteristic cutaneous findings (Gottron’s papules, eyelid involvement, nail fold changes).⁷ Notably, numerous cases of AOSD with atypical cutaneous eruptions have been reported.⁸ The most common findings included erythematous, brown, or violaceous persistent papules and plaques, often in conjunction with the classic evanescent pattern.⁸ Linear configurations, photoaccentuation, and dermatomyositis-like eruptions have all been reported.⁸

While the exact etiology of AOSD is unknown, there can be an association with an infectious trigger or underlying malignancy.² Malignancies have been reported to occur up to 6 years later and most commonly include lymphoma, breast, lung, and thyroid cancer.⁸ There remains no clear association between classic or atypical eruptions and malignancy.^{2,8} As with dermatomyositis, patients should have age appropriate cancer screening. This patient had a normal mammogram and Ca-125 was within normal limits.

The treatment of AOSD is typically initiated with non-steroidal anti-inflammatory drugs (NSAIDs) and topical, oral, or IV pulsed corticosteroids.² As in this case, disease persistence despite corticosteroid therapy

often requires the addition of disease modifying anti-rheumatic drugs such as methotrexate, IL-1 inhibitors, or TNF- α inhibitors.²

CONCLUSION

This case is representative of AOSD with an atypical cutaneous eruption and histopathological findings specific for AOSD. Our case highlights that aggressive treatment with multiple agents is required and high clinical suspicion for this diagnosis is warranted, even with atypical cutaneous findings.

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