JAMA Dermatology Clinicopathological Challenge

Flagellate Erythema in a Patient With Fever

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A woman in her 40s presented with a 6-month history of intermittent fevers, malaise, polyarthralgias, sore throat, and a pruritic exanthem on her trunk, scalp, and extremities. A previous biopsy was nonspecific. She had no significant medical history.

Physical examination revealed erythematous, mildly scaly plaques in a shawl distribution (**Figure**, A) and hyperpigmented, erythematous, excoriated papules in a linear arrangement on her back (Figure, B) and lower extremities. Laboratory studies showed leukocytosis (27 900/uL, 95% neutrophils) and increased levels of C-reactive protein (344 mg/L) and ferritin (63 000 ng/mL). Antinuclear antibody titer was 1:80. Findings for rheumatoid factor and antineutrophil cytoplasmic antibodies were negative, as were those for Lyme disease, rickettsial disease, cytomegalovirus, *Bartonella*, rapid plasma reagin, human immunodeficiency virus, and hepatitis. Serum and urine protein electrophoresis findings were also negative, and chest, abdomen, and pelvic computed tomography showed nonspecific hilar lymphadenopathy. A punch biopsy specimen from the back was obtained (Figure, C).

What is your diagnosis?

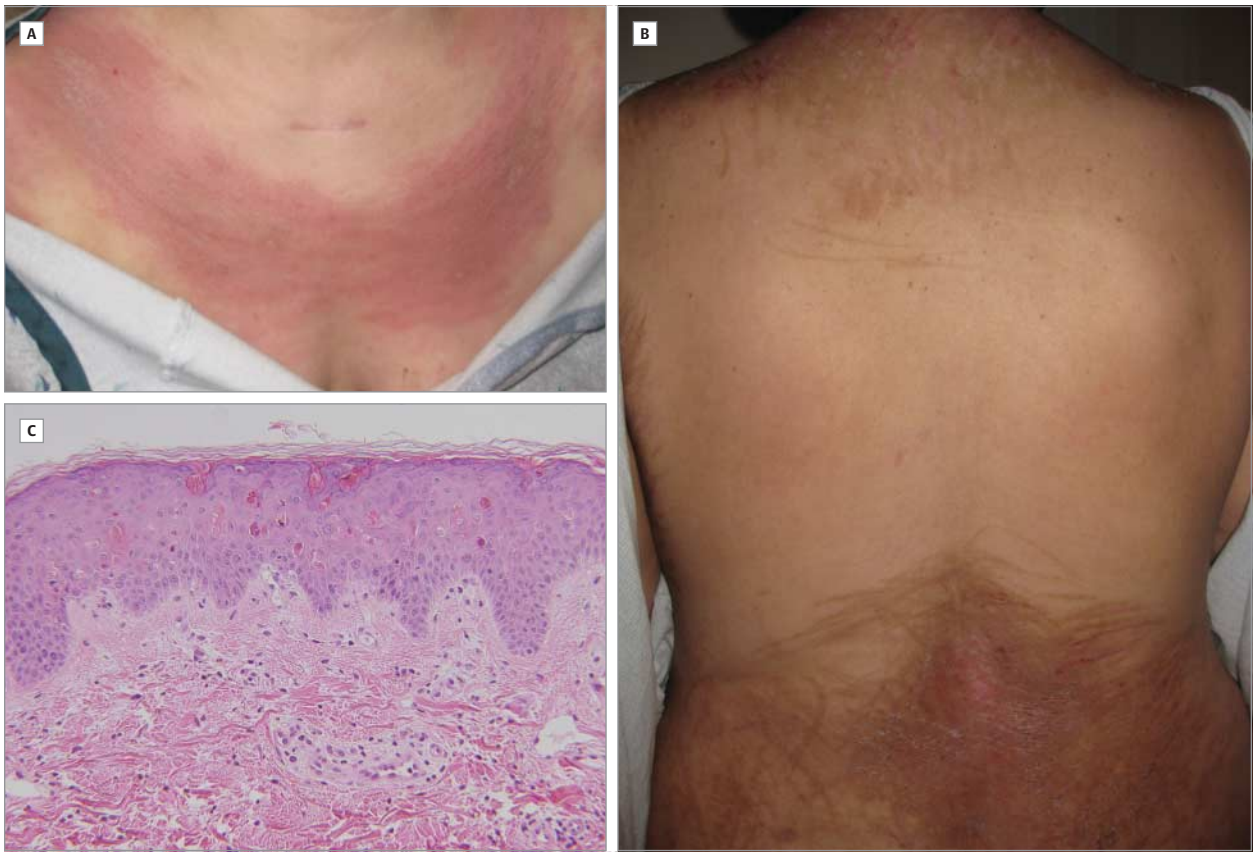

Figure.

Diagnosis

Persistent pruritic papules and plaques with flagellate erythema-type appearance in adult-onset Still disease

Microscopic Findings and Clinical Course

Histopathologic examination showed basketweave orthokeratosis and numerous clustered dyskeratotic keratinocytes in the upper layers of the epidermis, including the stratum corneum, sparing the basal layer. There was a mixed perivascular and interstitial inflammatory infiltrate in the papillary dermis with neutrophils and lymphocytes. Bone-marrow biopsy showed hypercellular bone marrow with hemophagocytosis, findings consistent with hemophagocytic lymphohistiocytosis (HLH). Patient was diagnosed as having adult-onset Still disease (AOSD) with reactive HLH. She improved under treatment with topical steroids, oral prednisone, and azathioprine.

Discussion

A rare systemic inflammatory disorder, AOSD is a diagnosis of exclusion.[1] Major diagnostic criteria include high spiking fevers greater than or equal to 39°C for at least 1 week, leukocytosis with neutrophilia, arthralgia for greater than 2 weeks, and typical skin eruption.[2] Minor criteria are sore throat, lymphadenopathy/splenomegaly, liver dysfunction, negative rheumatoid factor, and negative antinuclear antibody. Five or more criteria (including 2 major criteria) are necessary for diagnosis, and infections, malignant conditions, and other rheumatologic diseases must be ruled out. Though not part of the diagnostic criteria, marked hyperferritinemia is often characteristic of AOSD and can be used as a laboratory marker of disease activity.[3]

The typical skin findings in AOSD are an evanescent, salmon-pink, macular or morbilliform nonpruritic eruption that appears concomitantly with fever spikes. The histopathologic findings are nonspecific, including mild superficial perivascular lymphocytic infiltrate with variable neutrophils. Increasing numbers of case reports highlight a nonclassic variant of the skin eruption in AOSD called *persistent pruritic papules and plaques*. This variant manifests as nonevanescent pruritic erythematous papules and plaques with slight scale that often presents with a flagellate erythemalike presentation with linear configurations on the trunk and extremities.[4-8] The linearity may represent a Koebner phenomenon or scratching because the eruption characteristically spares the mid-back. Differential diagnosis of flagellate erythema includes bleomycin, dermatomyositis, and shiitake mushroom dermatitis.[9]

This nonclassic variant also has unique histopathologic features including dyskeratosis in the upper layers of the epidermis extending into the stratum corneum without involvement of the basal layer and a superficial dermal infiltrate with neutrophils and lymphocytes.[4-8] While this nontypical variant was first described by Kaur et al[4] in 1994, it may be an underrecognized cutaneous manifestation of AOSD. In the largest case series of persistent pruritic papules and plaques published to date, Lee et al[6] found that 65% (11 of 17) of their patients with AOSD had this variant. In addition, this nonclassic AOSD eruption may be associated with worse prognosis and systemic complications and may represent persistent disease activity.[10] An increased awareness of this nonclassic variant and its unique histopathologic features may be of significant value in helping to diagnose AOSD.

ARTICLE INFORMATION

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