JAMA Dermatology Clinicopathological Challenge

An Annular Eruption in a Young Child

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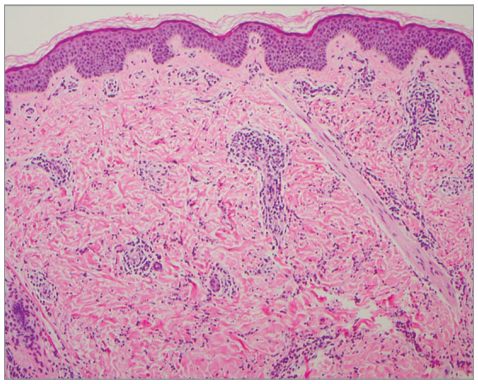
A Clinical photograph

B Original magnification × 100



C Original magnification × 400

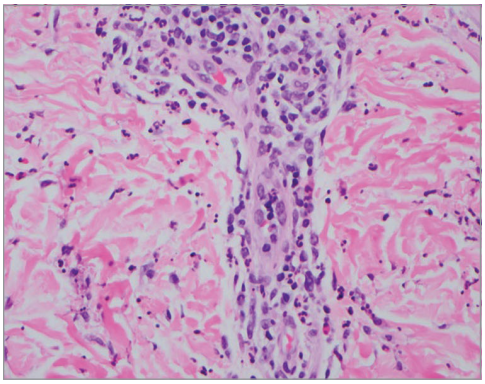


Figure. A, Annular serpiginous plaques with areas of central clearing on the patient's right thigh and buttocks. B and C, Histopathologic images (hematoxylin-eosin). B, Perivascular and inflammatory infiltrate. C, Perivascular and inflammatory infiltrate that includes eosinophils.

A young child presented to clinic with a 6-month history of an asymptomatic expanding erythematous eruption on the lower legs, abdomen, and buttocks (**Figure**, A). The eruption would wax and wane, with each episode lasting for approximately 1 week, without residual pigmentation. Clinical examination was significant for faint, nonscaling annular serpiginous, erythematous plaques with central clearing, and barely elevated borders. Test results for erythrocyte sedimentation rate, complete blood cell count, antinuclear antibodies, anti-Ro/SSA and anti-La/SSB antibodies, and *Borrelia burgdorferi* antibodies were within normal limits. There was no family history of autoimmune disease, and the child had not experienced any fevers or exposures to ticks or other arthropods. A punch biopsy specimen from the left thigh was obtained, and histopathological analysis was subsequently performed (Figure, B and C).

WHAT IS YOUR DIAGNOSIS?

A. Tinea corporis

B. Erythema marginatum

C. Annular erythema of infancy

D. Erythema migrans

Diagnosis

C. Annular erythema of infancy

Microscopic Findings and Clinical Course

The analysis of the skin biopsy specimen revealed a superficial and deep, perivascular, and interstitial inflammatory infiltrate consisting of lymphocytes, histiocytes, neutrophils, and eosinophils. The recurrent and relapsing nature of the lesions, perivascular eosinophilic infiltrate, and lack of other systemic or serologic findings is consistent with a diagnosis of annular erythema of infancy (AEI).

Discussion

Annular erythema of infancy is a benign, idiopathic disease characterized by the cyclic appearance of asymptomatic edematous papules. These enlarge peripherally, forming arcuate, annular plaques with urticarial borders. Lesions are typically several centimeters in diameter, and patients can have multiple confluent lesions that create a polycyclic appearance. The lesions are usually evanescent and last several days but tend to reappear in a cyclic fashion during the first year of life.[1]

First described in 1981 by Peterson and Jarratt,[1] a literature review revealed 8 other reported cases of AEI.[2,3] Although typical AEI has a recurrent and relapsing course that usually resolves without treatment and demonstrates an eosinophilic perivascular infiltrate on histologic examination, 2 variants have been described, including persistent AEI, which may continue into adolescence, and neutrophilic figurate erythema of infancy.[4-7]

While the etiology of AEI remains unclear, several hypotheses have been suggested based on case reports, including hypersensitivity reaction and *Candida* colonization.[2,4] This warrants further investigation of the specific risk factors, triggers, and causes of AEI.

The differential diagnosis of annular lesions in an infant is broad but includes other annular or figurate erythemas, such as erythema marginatum, erythema gyratum atrophicans transiens neonatale, erythema migrans, tinea corporis, erythema annulare centrifugum, and neonatal lupus erythematous. Some have argued that any annular lesion in infancy necessitates serologic testing for anti-Ro/SSA anti-La/SSB to rule out neonatal lupus; however, that opinion is controversial.[8] Urticaria should also be considered in the diagnostic examination of any nonscaling, polycyclic, and transient lesions. Unlike urticaria, which last less than 24 hours, the individual lesions of AEC typically last for days. Urticarial papules and plaques can be annular but may also have other morphologic characteristics. Urticaria are usually more numerous and more pruritic than those of AEI. Because the differential for annular erythematous lesions ranges widely, from benign conditions to systemic disorders, such as neonatal lupus erythematous, it is important to consider the rare case of AEI during a clinical workup.

Annular erythema of infancy is distinguished by its onset in early infancy, transience of the lesions, perivascular eosinophilic infiltrate (in most cases) and lack of other systemic or serologic findings. While AEI is uncommon, clinicians should be aware of this diagnosis and include it on the differential of any transient annular eruption in an infant.

ARTICLE INFORMATION

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