

Scaly Annular and Concentric Plaques

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A healthy 23-year-old man presented for evaluation of an enlarging annular pruritic rash of 1.5 years' duration. Treatment with ciclopirox cream 0.77%, calcipotriene cream 0.005%, tacrolimus ointment 0.1%, fluticasone cream 0.05%, and halobetasol cream 0.05% prescribed by an outside physician provided only modest temporary improvement. The patient reported no history of travel outside of western New York, camping, tick bites, or medications. He denied any joint swelling or morning stiffness. Physical examination revealed multiple 4- to 6-cm pink, annular, scaly plaques with central clearing on the abdomen (top) and thighs. A few 1-cm pink scaly patches were present on the back (bottom), and few 2- to 3-mm pink scaly papules were noted on the extensor aspects of the elbows and forearms. A potassium hydroxide examination revealed no hyphal elements or yeast forms.

WHAT'S THE DIAGNOSIS?

- annular psoriasis
- erythema annulare centrifugum
- erythema chronicum migrans
- erythema gyratum repens
- tinea imbricata

PLEASE TURN TO **PAGE E2** FOR THE DIAGNOSIS

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The authors report no conflict of interest.

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THE DIAGNOSIS: Annular Psoriasis

Because the patient's history was nonconcordant with the clinical appearance, a 4-mm punch biopsy was performed from a lesion on the left hip. Hematoxylin and eosin–stained sections demonstrated mild irregular acanthosis of the epidermis with discrete mounds of parakeratin (Figure 1A). Higher power revealed numerous neutrophils entrapped within focal scale crusts (Figure 1B). Periodic acid–Schiff stain for fungus demonstrated no hyphal elements or yeast forms in the stratum corneum. These histopathology findings were consistent with the diagnosis of annular psoriasis.

The manifestation of psoriasis may take many forms, ranging from classic plaques to pustular eruptions—either annular or generalized—and erythroderma. Primarily annular plaque-type psoriasis without pustules, however,

remains an uncommon finding.¹ Psoriatic plaques may become annular or arcuate with central clearing from partial treatment with topical medications, though our patient reported annular plaques prior to any treatment. His presentation was notably different than annular pustular psoriasis in that there were no pustules in the leading edge, and there was no trailing scale, which is typical of annular pustular psoriasis.

Topical triamcinolone prescribed at the initial presentation to the dermatology department helped with pruritus, but due to the large body surface area involved, methotrexate later was initiated. After a 10-mg test dose of methotrexate and titration to 15 mg weekly, dramatic improvement in the rash was noted after 8 weeks. As the rash resolved, only faint hyperpigmented patches remained (Figure 2).

Erythema gyratum repens is a rare paraneoplastic syndrome that presents with annular scaly plaques with concentric circles with a wood grain–like appearance. The borders can advance up to 1 cm daily and show nonspecific findings on histopathology.² Due to the observation that approximately 80% of cases of erythema gyratum repens were associated with an underlying malignancy, most often of the lung,³ this diagnosis was entertained given our patient's clinical presentation.

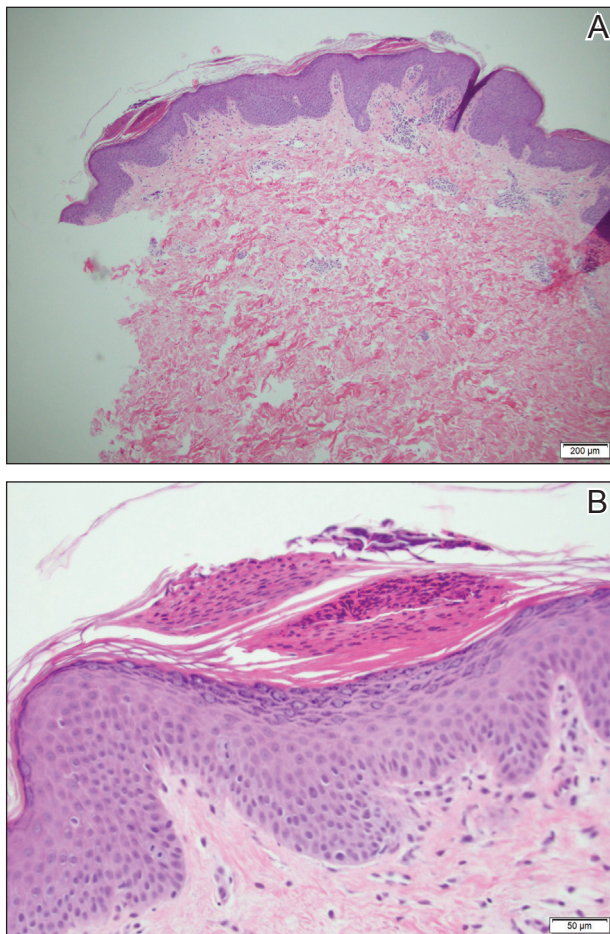


FIGURE 1. Epidermal acanthosis and discrete mounds of parakeratin (A) (H&E, original magnification $\times 4$) with neutrophils entrapped in the scale (B) (H&E, original magnification $\times 20$).



FIGURE 2. Fading, slightly scaly psoriatic plaques 8 weeks after initiation of systemic methotrexate.

Erythema annulare centrifugum (EAC) historically has been divided into 2 forms: superficial and deep.⁴ Both present with slowly expanding, annular, pink plaques. Superficial EAC demonstrates parakeratosis and trailing scale and has not been proven to be associated with other systemic diseases, while deep EAC has infiltrated borders without scale, and many cases of EAC may represent annular forms of tumid lupus.⁴ Inflammatory cells may cuff vessels tightly, resulting in so-called coat sleeve infiltrate in superficial EAC. Along with trailing scale, this finding suggests the diagnosis. It has been argued that EAC is not an entity on its own and should prompt evaluation for lupus erythematosus, dermatitis, hypersensitivity to tinea pedis, and Lyme disease in appropriate circumstances.⁵

Tinea corporis always should be considered when evaluating annular scaly plaques with central clearing. Diagnosis and treatment are straightforward when hyphae are found on microscopy of skin scrapings or seen on periodic acid-Schiff stains of formalin-fixed tissue. Tinea imbricata presents with an interesting morphology and appears more ornate or cerebriform than tinea corporis caused by *Trichophyton rubrum*. It is caused by infection with *Trichophyton circumscriptum* and occurs in certain regions in the South Pacific, Southeast Asia, and Central and South America, making the diagnosis within the United States unlikely for a patient who has not traveled to these areas.⁶

Erythema chronicum migrans is diagnostic of Lyme disease infection with *Borrelia burgdorferi*, and solitary lesions occur surrounding the site of a tick bite in the majority of patients. Only 20% of patients will develop multiple lesions consistent with erythema chronicum migrans due to multiple tick bites, spirochetemia, or lymphatic spread.⁷ Up to one-third of patients are unaware that they were bitten by a tick. In endemic areas, this diagnosis must be entertained in any patient presenting with an annular rash, as treatment may prevent notable morbidity.

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