



## Annular plaques on the back and flanks

The combination of a ring-shaped rash on the patient's torso and a foot infection led us to the diagnosis.

**AN 86-YEAR-OLD AFRICAN AMERICAN WOMAN** sought care for an asymptomatic rash on her back and flanks that she'd had for 14 months. Physical examination of her trunk revealed 3 to 6 cm annular/arcuate plaques with central clearing. The lesions also had a delicate trailing scale behind a slightly raised erythematous rim (**FIGURE 1**).

Further examination revealed that the pa-

tient had thickening and discoloration of her toenails (**FIGURE 2**), as well as moist scaling between the 4th and 5th toes of both of her feet.

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

**FIGURE 1**

**Erythematous patches with a fine trailing scale on the back**



PHOTOS COURTESY OF: ROBERT BRODELL, MD

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*Ms. Bankhead reported no potential conflict of interest relevant to this article. Dr. Jackson serves on a speakers bureau for Celgene. Dr. Brodell serves on speakers' bureaus for 3M/Graceway Pharmaceuticals, GlaxoSmithKline/Stiefel, Dermik/BenzaClin, Galderma Laboratories LP, Medici, Novartis Pharmaceuticals Corporation, PharmaDerm, Sanofi-Aventis, Veregen, and AbbVie. He has served as a consultant for F. Hoffmann-La Roche AG and Galderma Laboratories LP, and has performed multicenter clinical trials for Abbott Laboratories, Dow Pharmaceutical Sciences, Galderma Laboratories LP, and Genentech.*

**Diagnosis:**  
**Erythema annulare centrifugum**

Potassium hydroxide (KOH) testing and culture of the rash were negative, but a KOH of the skin between her toes and her toenails revealed septate hyphae, which confirmed a diagnosis of tinea pedis and onychomycosis. The combination of tinea pedis/onychomycosis and the clinical appearance of the rash on the patient's flanks led us to diagnose erythema annulare centrifugum (EAC) in this patient.

EAC is a noninfectious hypersensitivity phenomenon.<sup>1</sup> It is most commonly associated with dermatophyte fungi, but other inciting agents include candida, penicillium in blue cheese, viruses (varicella zoster virus, human immunodeficiency virus, Epstein-Barr virus), ectoparasites (phthirus pubis), and, rarely, certain medications, including diuretics, finasteride, nonsteroidal anti-inflammatory drugs, antimalarials, and amitriptyline.<sup>2-6</sup> Hormonal changes during pregnancy and neoplasms have occasionally been associated with EAC.<sup>2-4</sup>

Although EAC can occur in patients of any age, it mostly affects middle-aged adults.<sup>7</sup> Small, pink papules expand centrif-

ugally to form annular and arcuate plaques with central clearing. The superficial form of EAC is pruritic, with a scale trailing behind the margin and a less indurated border. The less common deep form presents with a pronounced cord-like border and no scale.<sup>3</sup> Lesions resolve without scarring over one to 3 weeks, while new lesions simultaneously develop. Residual postinflammatory hyperpigmentation may be present.<sup>2</sup> EAC may be localized or diffuse, but commonly appears on the lower extremities and trunk, sparing the palms, soles, and mucus membranes.<sup>2,3</sup>

■ **Histologic findings are nonspecific** in EAC, but a biopsy may be performed to exclude other conditions. Superficial EAC demonstrates histologic changes primarily in the epidermis, including spongiosis, parakeratosis, and a superficial inflammatory infiltrate.<sup>8</sup> The deep variant demonstrates superficial to deep dermal lymphocytic inflammatory infiltrate in a perivascular "sleeve-like" distribution with little epidermal change.<sup>7,8</sup>

**Differential diagnosis includes figurate erythemas**

The differential diagnosis includes figurate erythemas (erythema chronicum migrans and erythema marginatum) and other conditions with annular, scaling plaques (tinea corporis [ringworm], annular psoriasis, pityriasis rosea, syphilis (secondary stage), and mycosis fungoides).<sup>2,9</sup>

■ **Figurate erythemas.** Unlike EAC, figurate erythemas are non-scaling annular lesions. Erythema chronicum migrans is a manifestation of Lyme disease. It is characterized by papules that expand peripherally at the site of a tick bite. In some cases, secondary lesions distant from the bite occur. Erythema marginatum is associated with rheumatic fever. These nonpruritic red circular rings without scale are unique in their capacity to expand several centimeters per day.

■ **Conditions characterized by annular scaling plaques.** Tinea corporis presents as round red patches that slowly become ring-shaped, with a raised border and clear center. Unlike EAC, the scale is present at the leading border of the rings.

■ **Annular psoriasis** is characterized by

**FIGURE 2**  
**What was causing our patient's rash?**  
**Her feet provided a clue**



Fungal infections such as tinea pedis and onychomycosis—which our patient had—can trigger a case of erythema annulare centrifugum.

ring-shaped patches with white micaceous scaling and central clearing. Topical steroid use may be responsible for the central clearing as scaled patches expand. This rash can appear in places EAC typically does not, such as on the scalp, elbows, and knees.

■ **Pityriasis rosea** starts with a solitary herald patch a few days before hundreds of small oval scaled patches appear on the trunk in a “fir tree” distribution. Unlike EAC, the herald patch does not show the trailing scale.

■ **The rash associated with the secondary stage of syphilis** can appear on the soles of the feet and palms, which differs from EAC because EAC typically spares the feet and hands.

■ **In the patch stage of mycosis fungoides**, the ring-shaped rash can appear similar to psoriasis or chronic eczema, but can sometimes last years to even decades. Unlike EAC, these rings do not show a trailing scale and the patches may demonstrate poikiloderma (erythema, atrophy, and dyspigmentation).

## To treat EAC, eliminate the trigger

Treatment of EAC should focus on eliminating the inciting agent.<sup>2</sup> In one study of 66 patients with EAC, 42% had a concomitant cutaneous fungal infection (tinea pedis, tinea corporis, or onychomycosis).<sup>3</sup> A direct cause-and-effect relationship was established in 2 patients with dermatophyte-induced EAC whose lesions were reproduced and subsequently cleared by the experimental inoculation and treatment of tinea pedis.<sup>1</sup>

■ **Our patient.** Four weeks of oral terbinafine 250 mg/d effectively cleared our patient’s case of tinea pedis and EAC. After 3 months of treatment with terbinafine the onychomycosis showed one-third clearing at the proximal nail fold. Without additional treatment, the nails were completely clear 8 months later.

JFP

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Fungi, viruses, ectoparasites, and, less commonly, certain medications can trigger erythema annulare centrifugum.

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