

## A Rare Case Presentation of Erythema Annulare Centrifugum-Like Acute Psoriasis

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**Received Date** : Aug 24, 2022  
**Accepted Date** : Sep 16, 2022  
**Published Date** : Sep 24, 2022  
**Archived** : [www.jcmimagescasereports.org](http://www.jcmimagescasereports.org)  
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### Introduction

We report a case of erythema annulare centrifugum-like psoriasis occurring in a 44-year-old female. The patient presented with annular erythematous plaques with trailing collarette scales affecting the elbows and antecubital fossae, which are consistent with a clinical diagnosis of erythema annulare centrifugum (EAC). Given the presence of classical clinical features of EAC, this case was notable due to biopsy findings, which revealed classic histologic changes of psoriasis. This finding supports the diagnosis of erythema annulare centrifugum-like psoriasis and represents a rare presentation of acute psoriasis. Treatment with topical mometasone led to rapid and sustained long-term remission.

**Keywords:** Erythema annulare centrifugum, skin reaction, acute psoriasis, annular psoriasis, erythema annulare centrifugum-type psoriasis

### Case Report

A 44-year-old African American female with a past medical history of thyroid nodules and chronic migraine presented to our department with concerns about an itchy red rash on her elbows. She reported that the rash would appear and resolve intermittently throughout the course of the last few years without any identifiable triggers. She had used over-the-counter clotrimazole without improvement; however, over-the-counter hydrocortisone helped with her pruritus. The patient reported she had started an over-the-counter weight loss supplement due to recent weight gain; however, the rash erupted before starting this. At the time of encounter, she was taking topiramate and ondansetron for chronic migraines and associated nausea. Additionally, she did not have a known allergy to medications. She denied any usage of tobacco, alcohol, or drugs. The patient volunteered that her recent lab work results revealed increased levels of LDL and bilirubin. She denied

fever, chills, weight loss, nausea, vomiting, diarrhea, shortness of breath, chest pain, or night sweats. Finally, she had no family history of skin cancer or other dermatological diseases. The patient had Fitzpatrick skin type IV, and physical examination revealed annular erythematous plaques with trailing collarette scales on the patient's elbows and antecubital fossae (**Figure 1**).



**Figure 1:** Clinical presentation of figurative erythematous plaques with trailing collarette scales on the patient's elbows (1a) and antecubital fossae (1b) prior to treatment.



**Figure 2:** Resolution of previous skin findings on elbow (2a) and antecubital fossae (2b) after mometasone treatment. Histological findings from shave biopsy of right elbow illustrating confluent parakeratosis with collections of neutrophils, a thin granular layer, pallor of the upper layers of the epidermis, regular epidermal hyperplasia with elongated rete ridges, thin suprapapillary plates, and dilated blood vessels in the papillary dermis. A negative mycological examination was obtained via PAS-D staining, which failed to reveal fungal hyphae.

**Citation:** Faraz Yousefian. A Rare Case Presentation of Erythema Annulare Centrifugum-Like Acute Psoriasis. *J Clin Med Img Case Rep.* 2022; 2(5): 1249.

## Discussion

Erythema annulare centrifugum (EAC) is a rare dermatological reaction that initially presents as an urticaria-like papule or plaque. This erythematous lesion enlarges centrifugally and clears centrally, frequently exhibiting scaling along the inner portion of the advancing edge (e.g., trailing scale). Annular plaques can cause pruritus and appear in serpiginous, gyrate, or polycyclic patterns. The etiology behind EAC is incompletely understood, although its occurrence has been associated with various conditions, including drug reactions, fungal infections, food allergy reactions, autoimmune disorders, and stress [1-2].

EAC can occur in patients of all ages, although it is most commonly reported in adults 40 years or older. Moreover, it most frequently affects the buttocks, arms, and thighs, although it can be found in any body location. Diagnosis of EAC can be achieved based on physical examination alone if the characteristic trailing scale is present or in conjunction with histological findings. Histopathologically, EAC can manifest as two variants: superficial and deep [2]. Superficial EAC is characterized by superficial perivascular lymphocytic infiltration accompanied with dermal edema. These findings may or may not be accompanied by epidermal changes, including hyperkeratosis, spongiosis, parakeratosis, or crusting. Contrastingly, while deep EAC manifests as superficial and deep dermal perivascular lymphocytic cuffing, it is not accompanied by epidermal changes [2].

Most cases of EAC are idiopathic or a result of a hypersensitivity to the aforementioned conditions. Currently, there is no standard of care for EAC, and treatment often involves the discontinuation of known contributors. Topical steroids and antihistamines, which may provide some relief in cases of psoriasis, are typically ineffective for treating EAC, as relapse is common following their discontinuation [3]. Systemic administration of prednisone, etanercept, 3 and doxycycline 4 have been shown to elicit resolution of cutaneous findings, although relapse is also likely following drug discontinuation.

The case we report in this article suggests that diagnosis of EAC based on physical examination alone should be corroborated with histological findings, for other skin conditions can manifest as EAC. Namely, skin eruptions that can present as EAC include hypereosinophilic dermatitis [4], bullous pemphigoid [5], secondary syphilis [6], pityrosporum infection [7], pustular psoriasis [8] and acute-eruptive psoriasis [9].

Psoriasis is a skin condition whose etiology is multifactorial. Although the diagnosis of psoriasis can also be made based on the clinical presentation of its classical features, in rare instances, psoriasis can masquerade as different skin conditions and thus complicate its diagnosis. EAC-like psoriasis was first reported in 1933 by Milian and Katchoura and later by Lapiere in 1959, subsequently leading to the term EAC-type psoriasis (EACP) [9,10]. EACP may be easily misdiagnosed given its varied clinical histopathological presentations. Clinical features

may or may not involve the presence of annular and circinate plaques with peripheral pustulation, scabbing, or scaling collarettes and do not necessitate a medical history of psoriasis. Histologically, EACP ordinarily showcases polymorphonuclear microabscesses, spongiform pustules, and neutrophil infiltration in the epidermis. Still, these may not be present in all cases and may also vary in severity or intensity [10].

EACP is transient and may reoccur cyclically. It is responsive to topical therapy (i.e., topical 0.1% triamcinolone cream or mometasone ointment, as presented in this case) and retinoids. However, more severe cases may benefit from systemic administration of corticosteroids [9,10]. Patients who suffer from comorbid conditions and require chronic administration of other medications (i.e., antineoplastic agents, antihypertensive drugs, etc.) may not be responsive to antipsoriatic treatments like retinoids, cyclosporine A, PUVA, or topical therapies that usually help relieve EACP symptoms [10]. In these instances, patients have been shown to benefit from the replacement or discontinuation of previous medication and combinatorial treatment with methotrexate, acitretin, and topical calcitriol. In general, though, medical professionals should alter the concentrations of current medications to ensure they are well tolerated by the patient.

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