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Bullous eosinophilic annular erythema

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Abstract

Eosinophilic annular erythema is an idiopathic acute eosinophilic dermatosis. It is a rare condition, with approximately 30 cases reported in the English literature. It features annular, figurate urticarial edematous plaques primarily affecting the trunk and proximal limbs. During evaluation of a patient, secondary causes of eosinophilic inflammation such as allergy-related conditions (eczema, drug, urticaria, contact dermatitis), parasitic infestations, and autoimmune dermatoses will need to be excluded. We present an unusual case of a 47-year-old patient who developed this condition.

Keywords: eosinophilic dermatoses, urticaria

Introduction

Idiopathic primary eosinophilic dermatoses are a group of primarily eosinophil-driven skin disease characterized by moderate-to-dense eosinophilic skin infiltration with no significant infiltration of other leukocytes. Our case is consistent with one subtype of these conditions—eosinophilic annular erythema (EAE).

Case Synopsis

A 47-year-old man was hospitalized for a 5-day itchy rash over his trunk and lower limbs. He was otherwise well, with no fever. There were no new medications or supplements, preceding injuries, or insect bites.

On examination, annular infiltrated plaques were distributed over his abdomen, back, and thighs, with areas of central clearing (**Figure 1**). Some plaques were studded with tense vesicles containing yellow serous fluid, coalescing to form large bullae over his left flank (**Figure 2**). Total body surface area involved was 12%.

Histological examination showed superficial and deep perivascular infiltrate of predominantly eosinophils and some lymphocytes (**Figure 3**). Epidermal involvement, apoptotic keratinocytes, interface dermatitis, blistering, vasculitis, or granulomatous inflammation were all absent. Direct

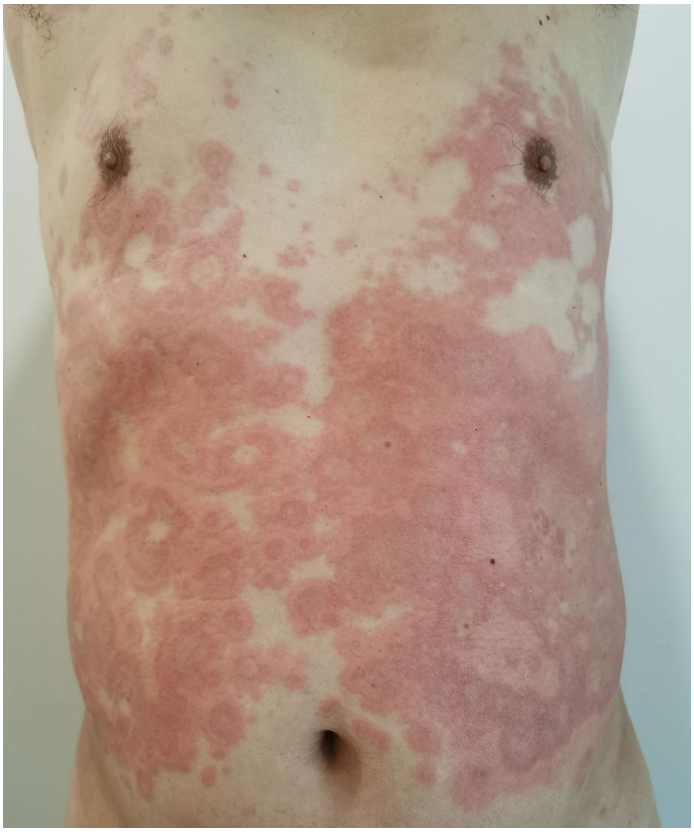

Figure 1. *Annular erythematous infiltrated plaques over the trunk, with areas of central clearing and sparing.*

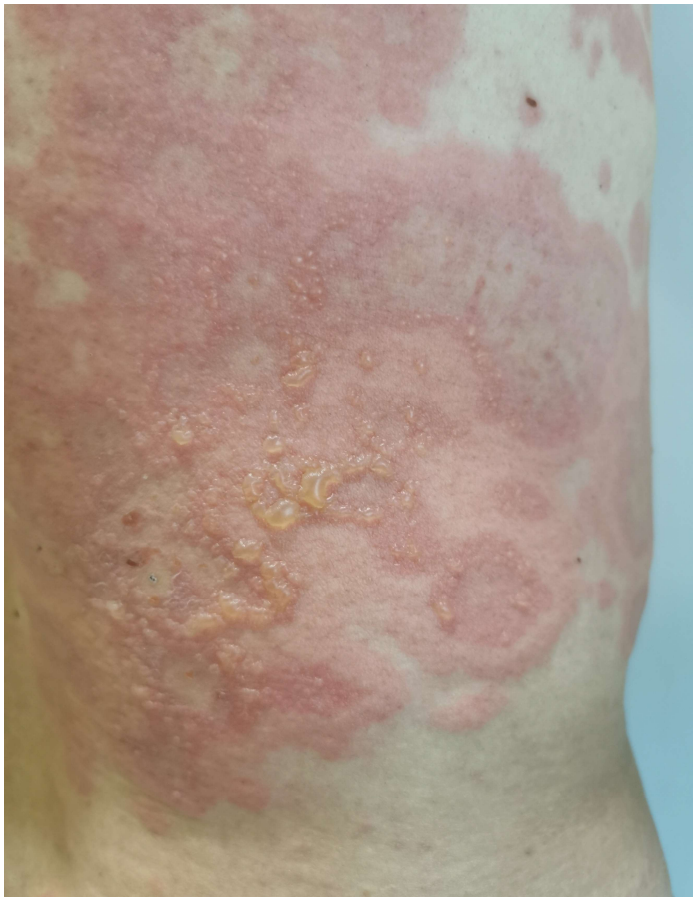

Figure 2. *Some plaques were studded with tense vesicles containing yellowish serous fluid. Some of the vesicles coalesce to form large bullae over his left flank.*

immunofluorescence was negative. He had no peripheral eosinophilia. Infective markers (HIV, Hepatitis B and C, Tuberculosis T-Spot), BP180, BP230, and indirect immunofluorescence were negative. Correlation of the clinical presentation and histopathology findings were consistent with a diagnosis of eosinophilic annular erythema (EAE).

He was treated with clobetasol 0.05% ointment with rapid improvement within days. Two months later on review, there was no recurrence of the eruption. The patient was subsequently lost to follow-up.

Case Discussion

Idiopathic primary eosinophilic dermatoses are a group of primarily eosinophils-driven skin diseases characterized by moderate-to-dense eosinophilic skin infiltration with no significant infiltration of other leukocytes. In the workup for primary

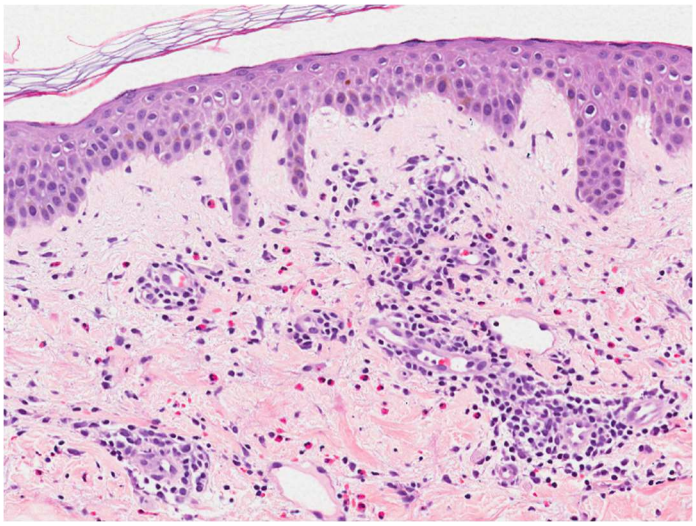

Figure 3. *Histology revealed superficial and deep perivascular infiltrate of predominantly eosinophils and some lymphocytes. There was no epidermal involvement, apoptotic keratinocytes, interface dermatitis, blistering, vasculitis or granulomatous inflammation seen. H&E, 20×.*

eosinophilic dermatoses, secondary causes of eosinophilic inflammation such as allergy-related conditions (eczema, drug, urticaria, contact dermatitis), parasitic infestations, and autoimmune dermatoses need to be excluded.

Eosinophilic annular erythema is an idiopathic acute eosinophilic dermatosis. It is a rare condition, with approximately 30 cases reported in English literature.

Eosinophilic annular erythema presents with annular, figurate urticarial edematous plaques primarily affecting the trunk and proximal limbs. A bullous variant has also been reported [1], as with our patient. We postulate that this clinical variant may result from an intense inflammatory infiltrate and dermal edema. Lesions may heal with no residual scarring or atrophy. Blood eosinophilia may or may not be present.

A handful of case reports have shown possible association with autoimmune thyroid disease, chronic borreliosis, and renal cell carcinoma [4]. In our patient, his thyroid panel was normal and there was no other clinical evidence of these conditions.

Reported treatment for this condition includes corticosteroids [1-3], antimalarial drugs [3,5], dapsone, indomethacin [4], cyclosporine [6] and

dupilumab [7]. Our patient responded well to potent topical corticosteroids. A chronic relapsing-remitting nature of this condition has been well documented in literature [1-4], with the largest case series of 10 patients reporting an average of four to 7 months' duration for a relapse of the condition [3]. Ideally, all patients should be on follow-up for recurrence.

Histologically, a superficial and deep perivascular lymphohistiocytic and eosinophilic infiltrate is seen [2]. The epidermis remains unaffected. Flame figures have been reported in some cases [3]. As such, EAE was considered to be a variant of eosinophilic cellulitis (Well syndrome). However, the two conditions remain clinically distinct.

Conclusion

In the evaluation of eosinophilic infiltrated plaques, common secondary causes need to be excluded. A minority of cases are primary idiopathic eosinophilic dermatoses, which include eosinophilic cellulitis, granuloma faciale, eosinophilic pustular folliculitis, recurrent cutaneous eosinophilic vasculitis, and eosinophilic fasciitis. Eosinophilic annular erythema may be considered in cases with an annular configuration.

Potential conflicts of interest

The authors declare no conflicts of interest

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