

Correspondence

Eosinophilic annular erythema associated with eosinophilic pneumonia and asthma

Dear Editor,

Eosinophilic annular erythema (EAE) is a rare eosinophilic dermatosis characterized by annular erythema with eosinophilic infiltrates in the dermis.¹

A 49-year-old Japanese woman was referred to us with pruritic and burning eruptions on the back for 2 months. The patient had a history of transient acute eosinophilic pneumonia (AEP) (white blood cells [WBC], 12,000/ μ l; eosinophils, 37.0% at the first examination at Department of Respiratory Medicine and Allergology) and subsequent persistent asthma (WBC, 4,800/ μ l; eosinophils, 5.0% at the initial diagnosis at Department of Respiratory Medicine and Allergology) for 3 years. Systemic corticosteroids had transiently been administered for AEP, and inhaled corticosteroids had continuously been administered for asthma. Physical examination revealed pruritic and burning, large, coalescent annular erythema with central hyperpigmentation and peripheral induration (Fig. 1a).

Laboratory examinations revealed the following: C-reactive protein, 0.089 mg/dl; WBC, 6,120/ μ l (neutrophils, 60.4%; lymphocytes, 23.2%; monocytes, 6.0%; eosinophils, 10.1%; and

basophils, 0.3%); C3, 78 mg/dl; C4, 32 mg/dl; CH50, 51.9 U/ml; and immunoglobulin E, 618 IU/ml. Serology tests for autoimmune disease, including anti-nuclear, anti-Ro, anti-La, proteinase 3-anti-neutrophil cytoplasmic, myeloperoxidase-anti-neutrophil cytoplasmic, and anti-BP180 antibodies, were negative. Histopathological examination from the peripheral indurated erythematous lesion showed a moderate infiltrate of eosinophils and neutrophils, flame figure (arrow), and nuclear dusts mainly in the superficial dermis (Fig. 1b,c). The lesions were diagnosed as EAE. Oral prednisolone 30 mg/day for 2 weeks was effective for skin eruptions (Fig. 1d) and blood eosinophilia. We now plan on periodical serology tests for anti neutrophil cytoplasmic antibodies to detect the sequential occurrence of eosinophilic granulomatosis with polyangiitis (EGPA) (Churg-Strauss syndrome).

In our case, eosinophilic infiltrates and noticeable flame figures were mainly present in the superficial dermis. The diagnosis of EAE is commonly based on annular erythematous plaques and the lack of flame figures. Flame figures represent a typical finding of Wells syndrome (WS) (eosinophilic cellulitis), although they may occur in other dermatoses characterized by eosinophilic infiltrate as well-developed and long standing EAE.¹

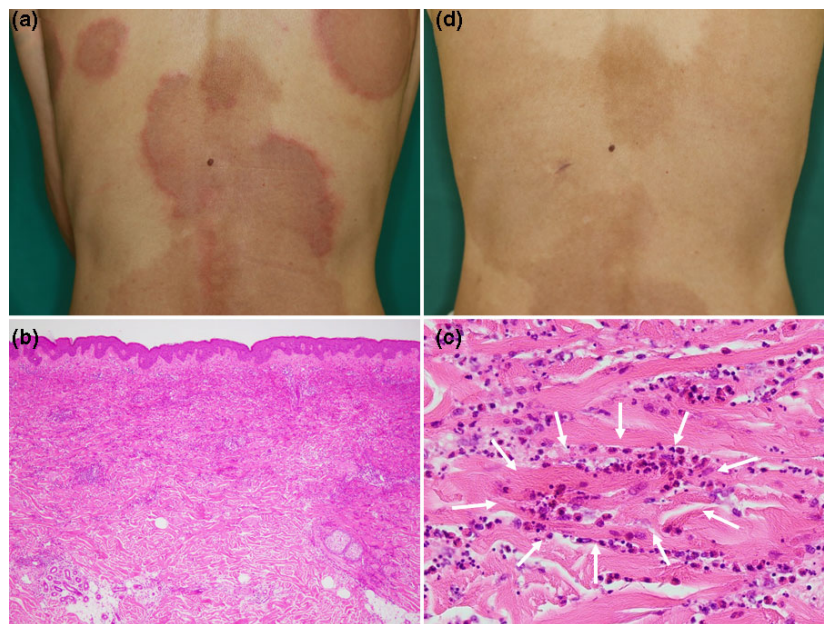


Figure 1 Clinical and histopathological findings in this patient. (a) A clinical picture at the first examination. (b, c) Histopathological pictures from the peripheral indurated erythematous lesion on the back (hematoxylin and eosin stain, original magnifications: b $\times 40$; c $\times 400$). Flame figure is indicated by arrows. (d) A clinical picture after oral administration of prednisolone 30 mg/day for 2 weeks

The patient in this case suffered from eosinophil-associated allergic diseases, sequentially from eosinophilic pneumonia to EAE via asthma. Eosinophil-associated allergic diseases include asthma and eosinophilic pneumonia in the lungs, atopic dermatitis, eczema, and WS in the dermis, and EGPA in the organs.² Eosinophilic pneumonia is a rare eosinophilic lung disease characterized by pulmonary eosinophilia-associated inflammation. WS is a rare eosinophilic dermatosis characterized by tender erythematous plaques with eosinophilic infiltrates and flame figures of degenerated collagen fibers coated with eosinophil granules.³ Eosinophilic pneumonia with asthma often precedes the onset of EGPA. EGPA is a rare eosinophilic systemic disease characterized by disseminated necrotizing vasculitis with extravascular granulomas.³ EAE and WS are occasionally associated with EGPA.⁴

Recent studies have detected the presence of tissue-resident eosinophils.⁵ Aberration of tissue-resident eosinophils may induce tissue-specific eosinophil-associated allergic diseases. Damage to other tissue-resident eosinophils may promote the sequential occurrence of tissue-specific eosinophil-associated allergic diseases as shown in this case. We should investigate the effect of dermis-infiltrating eosinophils and the communicating mechanism with other tissue-infiltrating and systemically circulating eosinophils.

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Conflict of interest: None.

Funding source: None.

doi: 10.1111/ijd.15601

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