QUIZ SECTION

Erythematous Annular and Polycyclic Lesions with Central Hyperpigmentation: A Quiz

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A 19-year-old male patient presented to our dermatology clinic with an annular polycyclic eruption. The lesions initially appeared on his back 1 week before the consultation and subsequently extended to the flanks, migrating centrifugally. Additionally, a few lesions were observed on his hands. He reported a spontaneous resolution of the initial lesions 7–10 days later.

The patient had a recent history of mandibular surgery (maxillary advancement, lowering, and transverse expansion), associated with a subsequent course of antibiotic therapy with co-amoxicillin for 1 week. The lesions appeared 3 weeks after the intervention. The patient denied any known allergies, and did not report any systemic symptoms or a recent insect bite.

Clinical examination revealed multiple polycyclic and annular oedematous plaques with some lesions showing a slight central hyperpigmentation and petechiae, on the back, flanks, and wrists (Fig. 1). There was no mucosal involvement or lymph node enlargement.

We conducted a comprehensive assessment including complete blood count, TSH levels, liver and kidney function tests, all of which were within normal ranges. Notably, no peripheral eosinophilia was observed. Analyses to rule out helminthiases yielded negative results. *Borrelia spp.*, syphilis, HIV, HBV, and HCV serologies were negative. ANA titre was 80. The lesions resolved 2 weeks after treatment.

What is your diagnosis?

Differential diagnosis 1: Subacute lupus erythematosus
Differential diagnosis 2: Erythema annulare centrifugum
Differential diagnosis 3: Eosinophilic annular erythema
Differential diagnosis 4: Multiple erythema migrans

See next page for answer.

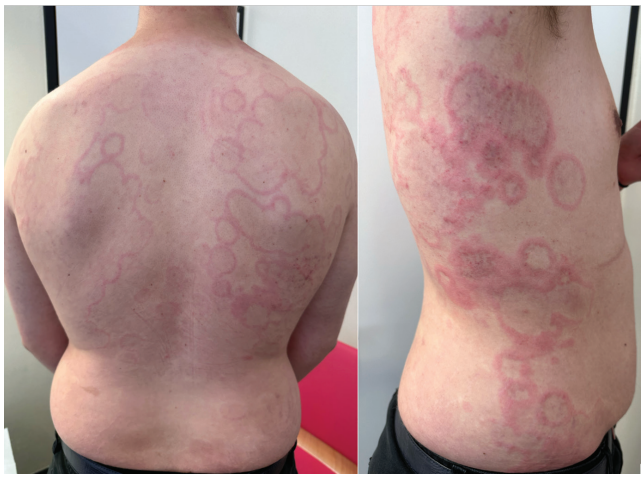

Fig. 1. Annular polycyclic erythematous and oedematous plaques with a few lesions showing a central hyperpigmentation.

ANSWERS TO QUIZ

Erythematous Annular and Polycyclic Lesions with Central Hyperpigmentation: A Commentary

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***Diagnosis*: Eosinophilic annular erythema**

The histopathological analysis of a skin biopsy (Fig. 2) showed a slight-to-moderate perivascular lymphohistiocytic infiltrate in the superficial and deep dermis, associated with many eosinophils and few extravasated red blood cells. Some vessels exhibited swollen endothelial cells, without fibrinoid necrosis. Very few plasma cells were observed. There was no significative mucin deposit revealed by Colloidal Iron stain. The direct immunofluorescence test yielded negative results. An eosinophilic annular erythema was diagnosed. Eosinophilic annular erythema (EAE) is a rare dermatosis, clinically characterized by annular lesions with elevated border and a slight central hyperpigmentation, and histopathologically by a perivascular inflammatory infiltrate with few-to-abundant eosinophils, usually without formation of "flame figures". The central hyperpigmentation seems to be related to basal epidermal melanosis. It has been hypothesized that IL-5 might activate melanogenesis of melanocytes, in addition to its role in the attraction of eosinophils in the dermis (1). Pruritus is occasionally reported (2), while the pathogenesis remains poorly understood.

There is some controversy surrounding this entity. Some authors believe it to be rather an unusual clinical variant within the spectrum of Wells syndrome, marked by a persistent course, treatment resistance, and a high rate of relapse (3). The histological features of Wells syndrome include the formation of flame figures, which consist of eosinophil granule major basic protein encrusted on normal collagen, and granulomas (3). In a multicentre long-term follow-up study of 10 cases, the authors indicated that biopsies done in well-developed lesions revealed the presence of flame figures in the majority of their cases, supporting the hypothesis that EAE may be a subvariant of Wells syndrome (3).

Differential diagnosis includes subacute lupus erythematosus, erythema annulare centrifugum, and multiple erythema migrans. Histologically, the absence of interface changes, absence of mucin deposit, and the presence of eosinophils were not consistent with subacute lupus erythematosus. Erythema annulare centrifugum usually does not show a central hyperpigmentation clinically, and usually no eosinophils histologically. Multiple erythema migrans is usually an expression of early disseminated Lyme disease, and the serologic tests could be positive. Moreover, the absence of exposition, of a tick bite, and the evolution of the lesions made this diagnosis very unlikely.

Choosing a treatment option for such patients may be a challenge due to sparse reports available in the literature. A retrospective multicentre study examined the treatment outcomes of 18 new cases and conducted a comprehensive analysis of previously published cases to propose a treatment strategy for patients who are resistant to topical steroids (2). Hydroxychloroquine is recommended as the initial systemic treatment option while dapsone and systemic corticosteroids can be considered as second-line treatment options (2). While the majority of reports in the literature describe a relapsing disease, there are also instances documenting a self-limited disease with no recurrences (4).

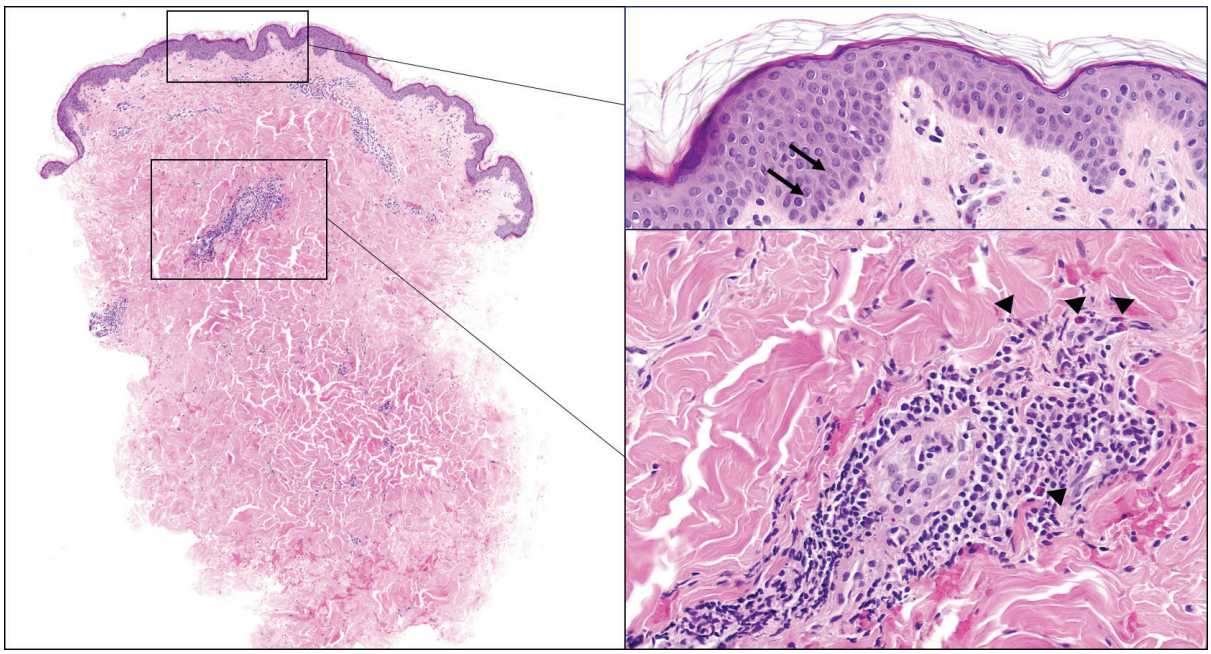

Fig. 2. Haematoxylin and eosin stain x 2.5 (left side), x 40 (first inset), and x 20 (second inset). The epidermis shows very slightly more pigmented foci (arrows, first inset). Superficial and deep dermal perivascular infiltrate composed of lymphocytes, histiocytes, and eosinophils (black arrowhead, second inset) and a few extravasated red blood cells. The endothelial cells are slightly swollen, without signs of vasculitis.

While EAE often appears highly resistant to treatment, with a course characterized by frequent relapses, our patient exhibited an excellent response to a topical corticosteroid treatment, with a single and auto-resolutive relapse. We concluded that the most likely precipitating factor was the antibiotic treatment with co-amoxicillin. To the best of our knowledge, it is the first documented case in the literature in English.

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