

## Recurrent Erythema Annulare Centrifugum During Ustekinumab Treatment in a Psoriatic Patient

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Ustekinumab is a human immunoglobulin G1 kappa monoclonal antibody that binds to the p40 subunit of interleukins 12 and 23. Ustekinumab has been approved for the treatment of moderate-to-severe psoriasis vulgaris and has shown high efficacy with favourable risk and benefit profiles in pivotal trials for both Caucasians (1, 2) and Asians (3). We report here a case of recurrent erythema annulare centrifugum occurring during ustekinumab treatment.

### CASE REPORT

A 55-year-old man, diagnosed with psoriasis vulgaris 6 years previously, had initially been treated with oral methotrexate, topical steroid and topical calcitriol. However, his clinical symptoms gradually became refractory to treatment, especially in cold weather. He had extensive psoriatic plaques with a Psoriasis Area and Severity Index (PASI) of 27.3 when he was first treated with ustekinumab 45 mg subcutaneous monotherapy on 17 April 2009. Subsequent doses were given on 15 May 2009 and 31 July 2009. His psoriasis improved significantly, with PASI reducing to 0.45 by 31 July 2009. However, mildly pruritic, erythematous annular scaly eruptions occurred on the patient's trunk during treatment (Fig. 1). The eruption initially appeared in the first week of July 2009 and resolved completely without treatment 2 weeks later. However, similar annular eruptions recurred on the trunk 4 weeks after the third injection of ustekinumab and disappeared gradually without treatment near the end of 2009. An incisional biopsy was taken from the annular eruption and showed mild acanthotic epidermis with focal parakeratosis and superficial perivascular lymphocytic infiltrates in the dermis. Neither basal vacuolar changes, nor Munro's microabscesses were present. He returned to our clinic on 23 September 2010 with a PASI of 19.2. According to the patient, his psoriasis lesions had recurred gradually since February 2010 and he was treated with topical agents. The patient recalled no similar annular rashes before the use of ustekinumab.

### DISCUSSION

Biologic agents are used increasingly for psoriasis control. Among the biologics, few cutaneous adverse events have been reported for ustekinumab and there is only one case report of lymphomatoid drug reaction



Fig. 1. There were several annular patches with peripheral fine scales inside the erythematous borders on the trunk.

after ustekinumab treatment for palmoplantar psoriasis (4). However, there are many reports of cutaneous side-effects after the use of anti-tumour necrosis factor (TNF) agents. Cutaneous side-effects due to anti-TNF agents have been classified into injection site reactions, infusion reactions, papulopustular eruptions (including psoriasis), granulomatous reactions, autoimmune skin disorders, vasculitis, cutaneous infections and cutaneous malignant tumours (5). Despite different modes of action, response to anti-TNF therapy is also linked to the suppression of IL-17 signalling pathway by ustekinumab (6).

Figurate erythema includes a variety of eruptions characterized by annular or polycyclic lesions in widespread or localized distribution. Erythema annulare centrifugum (EAC) is a variant of figurate erythema characterized by non-indurated, annular patches with associated trailing scales inside the erythematous borders. EAC as an inflammatory skin disease is a clini-

cal reaction pattern that does not represent a specific clinicopathological entity (7). The aetiology is mainly unknown, but EAC has been associated with infections, parasitic infestations, drug eruption and, rarely, occult malignancies (8). Two case reports of EAC have been reported after hydroxychloroquine therapy for lupus erythematosus (8, 9). EAC may be self-limiting, but anti-inflammatory and immunosuppressive medications are usually prescribed for the treatment. In one case report, EAC was unresponsive to immunosuppressive therapy (10).

In conclusion, we report here a case of recurrent EAC occurring after ustekinumab therapy. However, it is difficult to assess causality because there are no similar cases reported in large clinical development programmes in over 3,117 patients in Western trials treated for up to 3 years. Nevertheless, EAC is rare and dermatologists should be aware of the possible association. More investigations are needed to clarify the pathogenesis of the eruption, which may be either through cytokine imbalance or altered immunity to infectious agents.

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