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Treatment of Eosinophilic Annular Erythema with Chloroquine

Sir,

Figurate or gyrate erythemas include a variety of dermatoses characterized clinically by annular and polycyclic erythemas or plaques with a tendency to centrifugal extension and central healing. In most cases the aetiology remains unknown and elimination of the cause is then not possible. In some cases spontaneous remission of the different types of gyrate erythemas has been observed (1).

Several drugs have been used previously for the treatment of gyrate erythemas, in particular systemic steroids (2). In most cases, there is a poor response or lesions recur after discontinuation of treatment. Recently, chloroquine has been used as an alternative drug in the treatment of figurate erythemas. Frank et al. (3) observed a patient with erythema annulare centrifugum who showed a good response to chloroquine and hydroxychloroquine with disappearance of skin lesions and no recurrence.

Figurate erythemas with conspicuous tissue eosinophilia have only been reported in children (1, 4). We observed a patient with recurrent annular erythemas, histologically presenting as eosinophilic dermatosis of 9 years' duration; an entity that has to our knowledge not yet been reported in adults. This dermatosis responded only temporarily to corticosteroids, but resolved promptly after treatment with chloroquine.

CASE REPORT

A 62-year-old woman had suffered from recurrent itchy urticarial papules and annular erythemas up to 10 cm in diameter on the trunk and extremities for 9 years starting in 1989 (Fig. 1). At first presentation, the annular erythemas were slightly scaling. There was a history of thyreoiditis and thyreostatic treatment 10 years previously. She had not been taking any drugs during that time. Several laboratory and clinical work-ups were done in that period and revealed normal laboratory data and blood chemistry including eosinophil count, except for an elevated white blood cell count of 11300/mm^3. Antinuclear antibodies and subsets, electrophoresis and immunoelectrophoresis were normal. At the latest examination in 1997 IgG antibodies against *Borrelia burgdorferi* were (+++) positive as well as anti-thyreoglobulin antibodies with euthyreotic function. Chest X-ray, gynaecological, urological, throat, nose and ear examination, as well as an abdominal ultrasound investigation, were normal. A gastroscopy showed erosions in the antrum (*Helicobacter pylori* negative); furthermore, chronic tonsillitis was diagnosed. Six biopsies, taken at regular intervals during the 9 years, showed a dense superficial and deep perivascular lymphohistiocytic infiltrate in the dermis with abundant eosinophils throughout the dermis, and a normal epidermis and subcutis (Fig. 2). Direct immunofluorescence from one of the biopsies was negative. A T- and B-cell rearrangement to rule out malignant lymphoma performed on the latest skin biopsy in December 1997 showed a polyclonal proliferation.

The patient was treated repeatedly with local and systemic corticosteroids with only moderate success or short symptom-free periods.

Due to high IgG antibodies against *Borrelia burgdorferi* in 1997, a skin biopsy was cultured for *B. burgdorferi* but was negative. Nevertheless, the patient was treated with ceftriaxone 2 g/day intravenously for 3 weeks and topical steroids in January 1998. The dermatosis improved slightly, but there was a complete recurrence 3 weeks later. A therapeutic trial with dapsone initiated 4 weeks after treatment with ceftriaxone had to be discontinued after 6 weeks due to vertigo and lack of response. In May 1998, the patient was put on chloroquine 250 mg/day. After 2 weeks there was complete resolution of skin lesions and chloroquine was discontinued after 1 month. Nine months later, the patient was still free of symptoms.

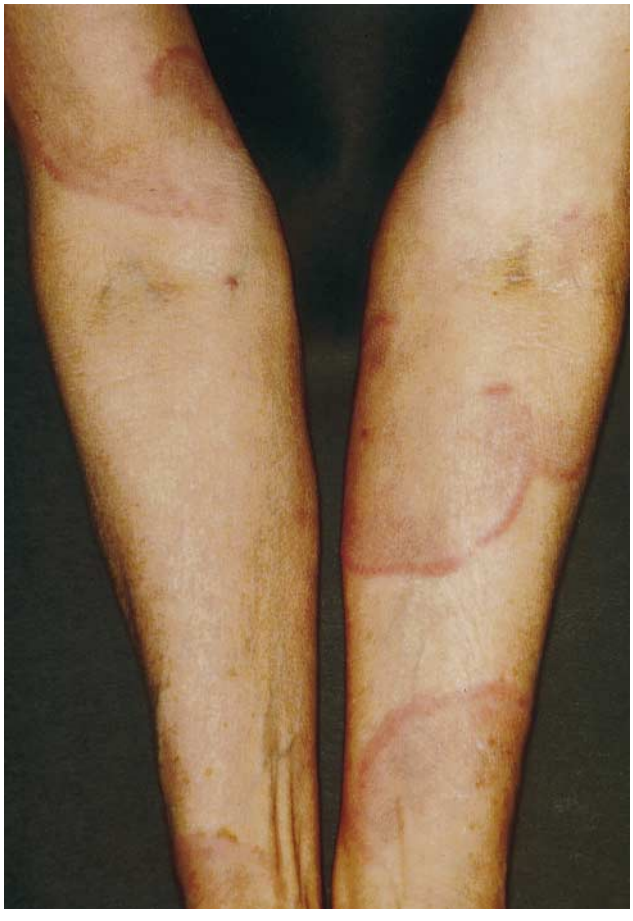

Fig. 1. Several annular plaques on the forearms with central clearing.

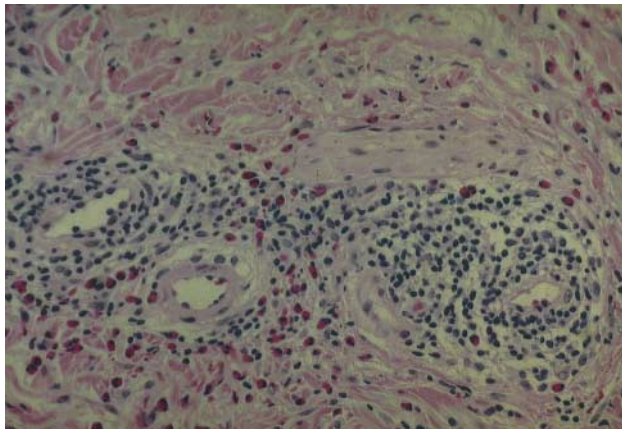

Fig. 2. Dense perivascular mononuclear infiltrate with abundant eosinophils. HE × 25.

DISCUSSION

Although histological investigations of the patient's biopsies were consistent with annular erythemas, the eosinophilic infiltration as well as the clinical picture prompted us to suspect Well's syndrome as a differential diagnosis. Since typical "flame figures" in the biopsy and blood eosinophilia were missing and clinical manifestation and course (absence of prodromal burning, painful oedema, peripheral induration, and subsiding by producing morphea-like lesions) differed from the description in the literature (5), this differential diagnosis was ruled out.

Reviewing the literature, we found that annular erythema of infancy has clinical and histological features similar to those in our patient. In annular erythema of infancy, first described by Peterson & Jarrat in 1981 (4), lesions usually develop from erythematous papules evolving into a palpable erythematous arc or ring, but scaling or vesicles are missing in most cases. Eruption of the lesions is cyclic with persistence of some days up to weeks or months. Histopathological findings show a perivascular infiltrate of lymphocytes and eosinophils. Usually neither underlying disease nor provocative factors were reported and the disease was generally self-limiting (4). In a recent report by Kunz et al. in 1998, annular lesions lasted for 5 years with remissions of several months. Treatment with systemic steroids led to short remissions only and treatment with dapsone was not successful, but there was spontaneous resolution within some weeks after the patient had been seen again at the age of 9 years (1).

Our patient was repeatedly treated with corticosteroids with only temporary success. Since a response to sulfones was reported in patients with eosinophilic dermatoses (6), we also tried this drug; however, it had to be discontinued due to side-effects. In analogy with successful treatment of annular erythema of Sjögren syndrome with anti-malaria drugs (3), we started treatment with chloroquine, although the patient was negative for specific autoantibodies. With a dose of 250 mg chloroquine/day the annular erythemas showed a complete remission after 2 weeks of treatment and did not recur during the observation period of 9 months.

The course of disease in our patient was not unusual. Gyrate erythemas may recur for months and years, especially when the aetiology is unknown. The prompt response to treatment with chloroquine was impressive. As chloroquine is known to inhibit eosinophilotaxis (7), this might have been a possible therapeutic mechanism in our patient. Furthermore, it is known that chloroquine has a dose-dependent inhibitory effect on the release of pro-inflammatory cytokines (8).

There has never yet been described a case report of gyrate erythemas in which eosinophilic granulocytes dominated in the dermal infiltrate. For that reason we assume that our case might be a hitherto unreported entity among the large group of gyrate erythemas.

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