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CASE REPORT

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Eosinophilic fasciitis successfully treated with cyclosporine

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Abstract We report on a 45-year-old female who developed eosinophilic fasciitis, characterized by scleroderma-like skin indurations, predominantly on the extremities and chest, with joint contractures and intermittent blood eosinophilia. Histologic examination revealed fibrosis of muscle fascia and eosinophilic infiltration. High-dose systemic corticosteroid therapy was ineffective, but cyclosporine treatment led to remission.

Keywords Cyclosporine · Eosinophilic fasciitis

Introduction

Eosinophilic fasciitis (EF), first described by Schulman in 1974, is a rare inflammatory scleroderma-like disorder of unknown etiology characterized by symmetric painful swelling and induration involving the arms and legs in association with peripheral eosinophilia [1]. The occasional presence of antinuclear antibodies and rheumatoid factor and the coexistence with autoimmune hematologic diseases suggest autoimmune pathogenesis. Rapid onset, progression, and good response to systemic corticosteroid therapy are also characteristics of the disease. We present a patient with EF, resistant to corticosteroid therapy, successfully treated with cyclosporine.

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Case report

A 45-year-old woman (Fig. 1) had a 4-month history of slowly progressive, painless induration of the extremities associated with an 8-kg weight gain and mild fatigue. The induration started on her neck, weak after strenuous physical activity consisting primarily of push-ups, and progressed to involve the forearms, hands, trunk, and lower extremities. Gradually, she developed flexion contractures. Physical examination revealed thickness, induration of the skin and subcutaneous tissues of her forearms, neck, abdomen, and thighs. Raynaud's phenomenon or sclerodactyly were absent.

Laboratory tests revealed total peripheral blood leukocyte count 10.9×10^9/l with eosinophilia 14% ($n=1$–3%). Eosinophil count was 2×10^3/μl ($n=40$–400). C-reactive protein was 11.0 mg/l ($n=0$–5). The serum IgE level was 100 IU/ml ($n=0$–100). There was no evidence of parasitic infection. A chest X-ray and abdominal ultrasound showed no pathological changes. Renal and liver tests as well as urinalysis showed no abnormalities. Protein electrophoresis showed hypergammaglobulinemia 19 g/l [normal value (NV): <15 g/l] without monoclonal bands. Rheumatoid factor, antinuclear antibodies, and serum anti-*Borrelia burgdorferi* antibodies were also negative.

A large, deep surgical biopsy of the pronator teres including dermis, fascia, and muscle tissue was performed. Lesions were located in the deeper part of the subcutaneous tissue, adjacent to the fascia; they combined hyaline sclerosis and perivascular inflammatory infiltration by lymphocytes, plasmocytes, and eosinophils (Fig. 2). The diagnosis of EF was established and the woman was treated with prednisolone, 60 mg daily for 4 weeks, with no clinical benefit. The prednisolone dose was gradually withdrawn and she underwent a new 4-week treatment with cimetidine (1600 mg daily), also without success. During this treatment, the symmetric subcutaneous stiffness of the extremities and trunk became more pronounced and she also complained of

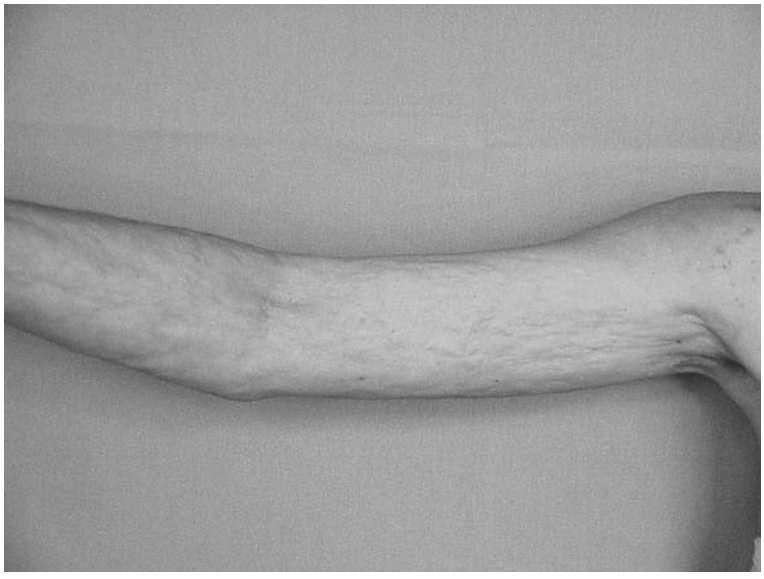

Fig. 1 Eosinophilic fasciitis: disseminated scleroderma-like skin changes on the upper extremities

reduced sense of touch. Finally, cyclosporine 5 mg/kg per day for 4 weeks was started. The stiffness in the neck, arms, forearms, and trunk was greatly reduced and the results of laboratory tests normalized. We tapered cyclosporine to 2.5 mg/kg per day and no recurrence has been observed for more than 8 months.

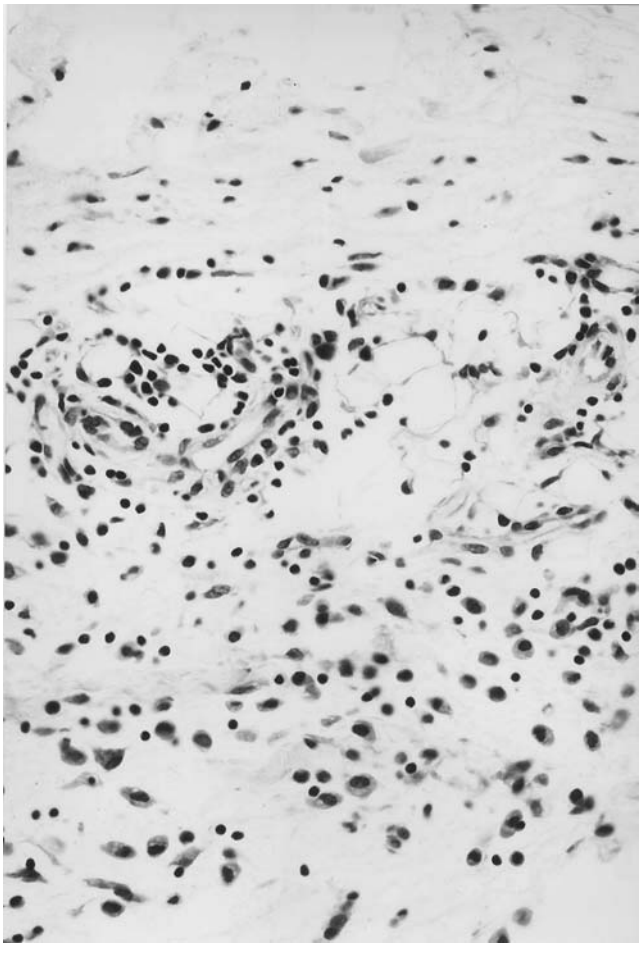

Fig. 2 Eosinophilic fasciitis: subcutaneous septa and muscular fascia, infiltrated by lymphocytes, plasma cells, and eosinophils (hematoxylin and eosin, ×400)

Discussion

EF is a rare disease characterized by scleroderma-like skin changes and eosinophilia [1, 2]. While the diagnosis of EF is now well established, its optimal treatment is not yet clearly defined.

There are several treatment modalities reported for EF. It has been treated with systemic corticosteroids, nonsteroidal anti-inflammatory drugs, methotrexate, photochemotherapy, hydroxyzine, and cimetidine [3–7]. Recently, Drosou et al. [8] reported cases of EF which responded favorably to monoclonal antibody against tumor necrosis factor alpha. Plötz et al. [9] demonstrated that patients with eosinophilic dermatitis and elevated blood levels of interleukin-5 can benefit from treatment with anti-interleukin-5 antibody.

In our case, a trial of corticosteroids and cimetidine was completely ineffective. An important aspect of our patient was a good response to treatment with cyclosporine, which is an immunosuppressant [10]. Laneuville [11] reported a patient with coexisting EF and chronic lymphocytic leukemia; when given cyclosporine for the latter disease, the patient's EF resolved. Fleming et al. [12] reported a case of EF with myelodysplasia that responded favorably to cyclosporine. Peter and Ruzicka [13] recommended cyclosporine as the first choice for disabling morphea which, like EF, may cause symptoms of carpal tunnel syndrome. A number of clinical studies have shown that cyclosporine has a beneficial effect both in systemic and localized scleroderma [14, 15]. More recently, Hayashi et al. [16] reported a patient with EF, following exposure to trichloroethylene, who was successfully treated with cyclosporine. Lohi et al. [17]

further demonstrated that cyclosporine in vitro enhanced the expression of collagenase in dermal fibroblasts, resulting in increased turnover of the fibrotic extracellular matrix and degradation of collagen. The induction of collagenase expression by cyclosporine is probably of therapeutic relevance.

The beneficial effect of cyclosporine in the above cases encouraged us to use this treatment in our patient. Eight months later, our case seems to confirm this favorable effect, but EF is a rare disease and the efficacy of these various treatments is difficult to assess. We feel that cyclosporine is useful and should be included in the available therapeutic arsenal. Such a proposal must obviously be evaluated in studies of a larger number of patients.

In summary, we report a case of EF unresponsive to conventional therapy, which improved rapidly after a short course of cyclosporine. In our opinion, such therapy might be useful in such patients to stop rapid fascial inflammation and consequent tissue damage.

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