Improvement of Psoriatic Erythroderma by Combination Therapy Consisting of Systemic Etretinate and a Corticosteroid, Photochemotherapy, and a Topical Corticosteroid and Vitamin D_3

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ABSTRACT. A 31-year-old Japanese woman was admitted to our hospital with diffuse erythroderma with generalized desquamation and arthritis in the ankle joints. Based on a skin biopsy specimen which revealed the histological picture of psoriasis, a diagnosis of psoriatic erythroderma was made. Treatment with a topical corticosteroid and systemic methotrexate was ineffective. Oral cyclosporine was effective, but it was discontinued because of exacerbation of a respiratory tract infection. Treatment with oral prednisolone relieved her joint pain, but manic-depressive psychosis developed, and lithium carbonate was given orally. Topical psoralen with ultraviolet A radiation (PUVA) treatment in combination with the systemic and topical corticosteroids, topical vitamin D_3, and systemic etretinate controlled her psoriasis and arthritis.

Key words : psoriasis — erythroderma — photochemotherapy — etretinate — corticosteroid

Psoriasis is a chronic relapsing disease of the skin with variable clinical features. Psoriasis vulgaris, the most common type of psoriasis, is characterized by a well-defined erythematous plaque with a silvery gray scaling on the surface. Psoriatic erythroderma involves the entire body, presenting with generalized erythema and varying degrees of scale. Without treatment, patients with psoriatic erythroderma may become systemically ill as a result of high-output congestive heart failure, protein loss, and electrolyte imbalance.[1] In severe psoriasis, monotherapies are often ineffective. In addition, the monotherapies that clear psoriasis most quickly and conveniently are among the most toxic. In patients with moderate-to-severe psoriasis, combination therapies are often more effective and safer than single agent therapy.[2] We report a case of psoriatic erythroderma resistant to various treatments. The disease has been controlled with a combination of photochemotherapy, oral prednisolone, oral etretinate, topical corticosteroids, and tacalcitol ointment.

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CASE REPORT

A 31-year-old Japanese woman was admitted to the Department of Dermatology of our hospital with diffuse erythroderma and generalized desquamation. At the age of 15 years, scaly plaques appeared on her head. Although she had been treated by a few dermatologists with topical corticosteroids, scaly plaques progressively appeared on the trunk and extremities, leading to diffuse erythroderma. She also suffered mild swelling and severe pain in the ankle joints. On examination, her scalp, face, neck, trunk, and extremities were diffusely red and profound scaling was observed (Fig 1). A small area of uninvolved skin and well demarcated scaling plaques were observed on her feet (Fig 2). Her laboratory data were normal with the exception of a serum globulin level of 5.0 g/dl, an erythrocyte sedimentation rate of 57 mm/hr, and C-reactive protein level of 1.82 mg/dl. Rheumatoid factor was negative. X-ray films of both ankle joints revealed no degenerative changes. A skin biopsy specimen from the arm disclosed regular elongation of the rete ridges with thickening in the lower portion, absence of granular cells, and degenerated neutrophils in the parakeratotic stratum corneum (Fig 3). A diagnosis of psoriatic erythroderma was made on the basis of clinical signs and histopathological findings. Treatment with corticosteroid ointment did not alter the skin eruption, and nonsteroidal anti-inflammatory medicine did not relieve her joint pain. She was then given 7.5 mg of oral methotrexate weekly for three weeks, but her erythroderma and joint pain remained unaltered (Fig 4). Oral cyclosporin improved her scaling erythroderma and joint pain, but it was discontinued owing to high fever and an upper respiratory infection.

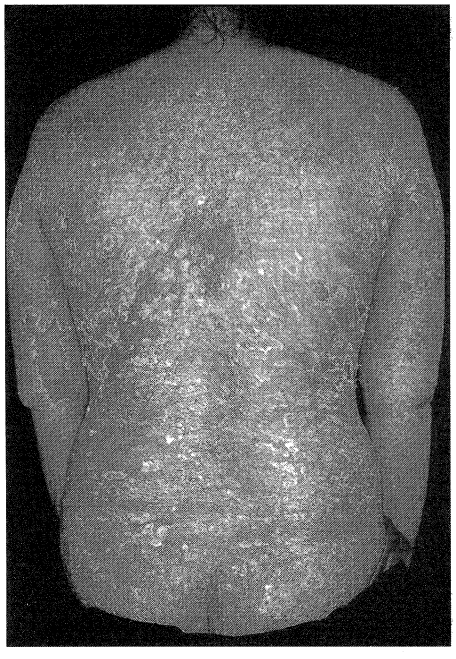

Fig 1. Diffuse erythroderma with profound scaling on the back and buttocks are seen.

Her scaling erythroderma and joint pain then became worse. Thirty mg of oral prednisolone daily relieved her joint pain and improved the skin eruptions, but manic-depressive psychosis, presumably due to corticosteroid, developed, and lithium carbonate was given orally. Topical psoralen with ultraviolet A radiation (PUVA) treatment in combination with oral and topical corticosteroids controlled her skin lesions, and the patient was discharged. However, she was readmitted with worsening skin symptoms five weeks after the discharge. Addition of oral etretinate in conjunction with PUVA, the oral corticosteroid, and tacalcitol ointment controlled her psoriatic erythroderma and joint pain. Oral prednisolone was tapered to 7 mg daily and PUVA treatment was discontinued when she was discharged in January 2004. She has been followed up for five months without severe flare-ups in her psoriasis.

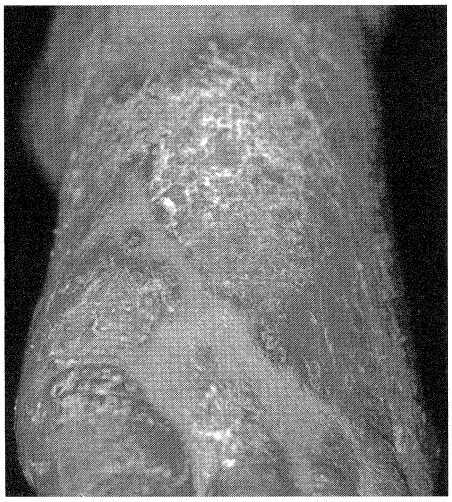

Fig 2. Well demarcated erythematous plaques on the left foot are seen.

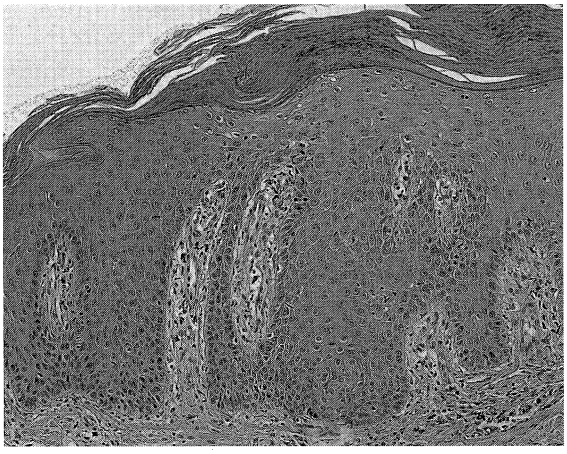

Fig 3. A skin biopsy specimen shows elongation of rete ridges and degenerated neutrophils in the parakeratotic stratum corneum. H-E staining. ×200.

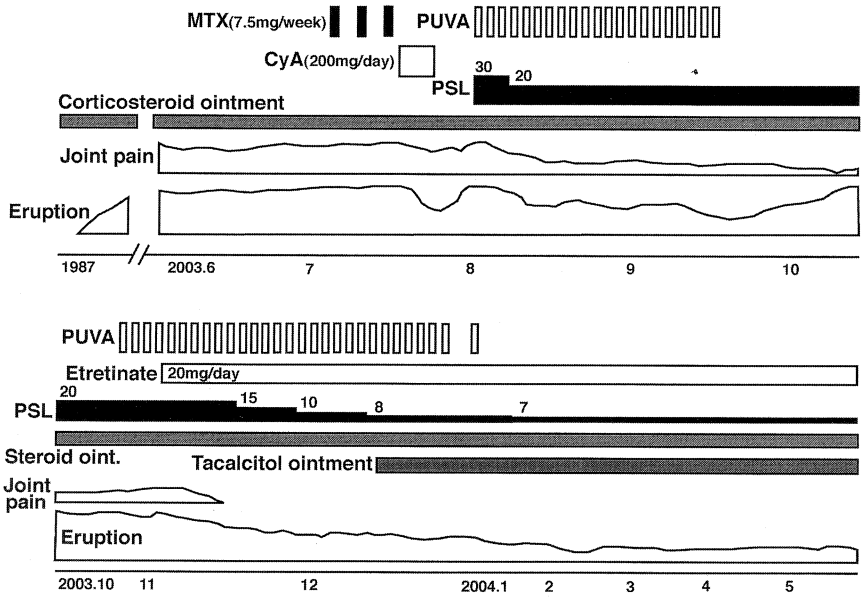

Fig 4. Summary of the clinical course. The abbreviations used in this figure are as follows. CyA : cyclosporine A, MTX : methotrexate, PSL : prednisolone, PUVA : psoralen with ultraviolet radiation A.

DISCUSSION

Erythroderma is a term applied to any inflammatory skin disease which affects more than 90% of the body surface, and usually accompanies exfoliation of scales.[3] The main causes of erythroderma are eczema, psoriasis, drug eruption, and lymphoma. We diagnosed this patient as having psoriatic erythroderma, because well demarcated scaling plaques are characteristic of psoriasis and the histological findings of her skin specimen were consistent with it. Drug eruption was excluded because she did not take medicine before admission. Histologic examination was required to exclude eczema and lymphoma. This patient also suffered from pain of the ankle joints. Psoriatic arthritis was suspected because of previously reported inflammatory arthritis in a psoriatic patient with a negative serological test for rheumatoid arthritis.[4] Previous studies have also shown an association between psoriatic arthritis and severe psoriasis.[5,6]

We have a number of treatments for inducing remission in psoriasis patients and maintaining it, but as yet there is no cure for psoriasis. For patients with mild to moderate psoriasis, topical therapies including corticosteroid ointment and vitamin D_3 analogues, and photochemotherapy (PUVA) are generally used. Systemic treatment of psoriasis is required in cases of severe disease when lesions are widespread or pustular or when psoriasis is in an active phase, with rapid flare-ups after topical treatment. Methotrexate is used for severe psoriasis and psoriatic arthritis,[7] but it was not effective in this case. Cyclosporine is a cyclic polypeptide that is used widely for the prevention of graft rejection, which is also used for the treatment of severe psoriasis.[8] Cyclosporine was effective in this case, but

it was discontinued because exacerbation of a respiratory tract infection was suspected. Systemic use of corticosteroids should be restricted to selected psoriasis patients because systemic corticosteroid therapy is sometimes accompanied by severe rebound[9] or conversion into pustular forms of psoriasis.[10] In this case, we used a systemic corticosteroid for her refractory psoriatic arthritis and erythroderma. This treatment controlled her arthritis, but manic-depressive psychosis was induced. For the treatment of severe psoriasis, several combination regimes of different therapies have been established.[2] The combination of PUVA with topical corticosteroid has been shown to be advantageous for rapid skin clearance and long remissions compared with monotherapies.[11] The addition of low-dose retinoids enhances both the efficacy and safety of PUVA in patients with severe, widespread psoriasis.[12] Tacalcitol ointment has also been applied for some intractable skin lesions, because it has been shown to effective and safe for the treatment of refractory psoriasis vulgaris with low response to topical corticosteroids.[13] Taking account of the course of the disease and previous reports mentioned above, we finally controlled the patient's symptoms with a combination therapy consisting of systemic etretinate and a corticosteroid, PUVA, and a topical corticosteroid and vitamin D_3. Controlling psoriasis with a combination of more than two therapies that serves to balance safety needs careful consideration and observation, since no evidence-based treatment guideline exist.[2] Therefore, a careful monitoring of liver and kidney function, blood glucose, blood electrolytes, and serum lipids is necessary in this case. Based on the evidence that psoriasis is a T-cell mediated inflammatory disease, recently, a number of therapeutic approaches including anti-cytokine therapy have been developed.[14] These new therapies may be useful for the control of severe psoriasis like that in this case.

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