Coexistence of Bullous Pemphigoid and Psoriasis : A Case Report and Review of the Literature

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There have been several reports in the literature of coexistent psoriasis and bullous pemphigoid. In most cases, the bullous pemphigoid lesions have been considered to be induced by antipsoriatic treatments. We describe a patient with psoriasis in whom bullous pemphigoid developed during psoriasis treatment, but the exact etiologic factor was not identified. Recently, some reports have suggested that an immunologic or biochemical association between the two diseases plays a role in the pathogenesis. (Ann Dermatol 11(1) 23~26, 1999).

Key Words : Coexistence, Psoriasis, Bullous pemphigoid

INTRODUCTION

There have been a number of case reports about the coexistence of bullous pemphigoid and psoriasis. In most cases, bullous pemphigoid has been thought to be related to psoriasis treatment. However, in some cases, no causative agent was found and the association between the two diseases is considered to be a result of immunologic reactions not related to psoriasis treatment. We report a patient with psoriasis in whom bullous pemphigoid developed during psoriasis treatment, but the exact etiologic cause could not be identified.

CASE REPORT

A 67-year-old man with a 3-year history of psoriasis was admitted to our hospital for treatment of acute generalized blistering eruptions which had developed a few days previously. Six months prior to admission, he was treated with topical emollient and UV-B radiation. After only three courses of treatment with a total dose of 280mJ/cm^2, UV-B radiation was discontinued due to malaise and nausea. He denied any history of drug taking or other systemic diseases.

A physical examination revealed multiple, small, tense, and clear bullae symmetrically distributed on the scalp, face, trunk, upper and lower extremities(Fig. 1). He complained of severe pruritus, chilling, sharp stabbing pains and a febrile sense. The results of laboratory studies including complete blood cell counts, a liver function test, renal function test, thyroid function test, urinalysis, FANA and serum immunoglobulins were all negative or within normal limits. A biopsy showed a subepidermal bulla containing neutrophils and eosinophils. There were also mild perivascular infiltrations of inflammatory cells consisting of a few neutrophils and eosinophils in the upper dermis. A direct immunofluorescent examination showed moderate deposits of IgG and C3 in a linear pattern at the basement membrane zone(Fig. 2). An indirect immunofluorescent examination, using normal human skin as a substrate, demonstrated anti-BMZ IgG as a titer of 1:160. When 1M salt-split human skin was used as a substrate, the IgG was found to be bound to the epidermal side. An immunoblot test was performed using both EDTA-separated normal human epidermal and dermal extracts. No positive band was found. He was diagnosed as having bullous pemphigoid and his bullous lesions healed

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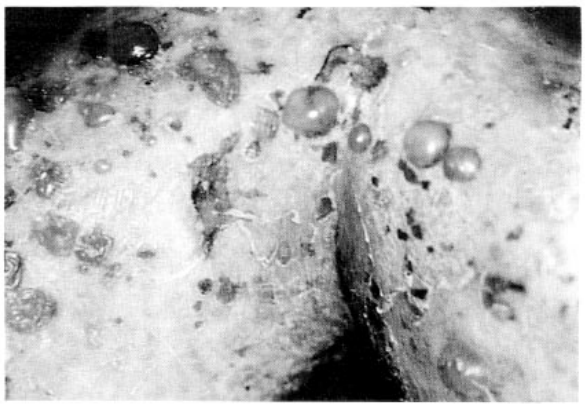

Fig. 1. Multiple, tense and clear bullae distributed on the lower legs.

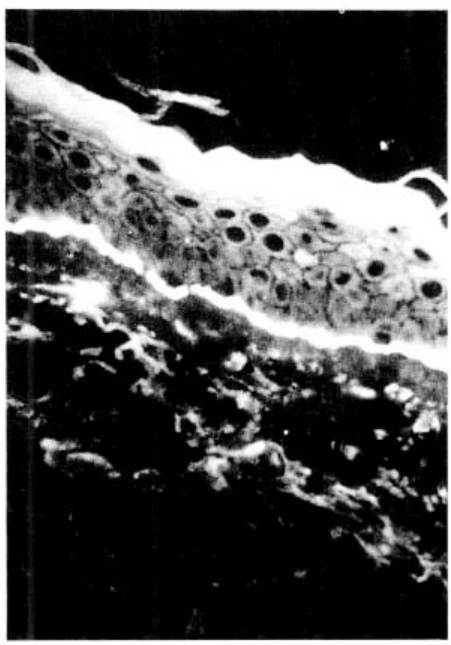

Fig. 2. Direct immunofluorescence demonstrating linear deposition of IgG at the dermoepidermal juction. (× 200).

rapidly after starting medication with prednisolone 0.5mg/kg daily. Three months later, the dosage was discontinued without the appearance of new bullous lesions. However, psoriatic plaques were found at the healed sites by the Koebner phenomenon.

DISCUSSION

The coexistence of psoriasis and bullous pemphigoid was first reported by Bloom[1] in 1929. Since then, there have been at least 54 cases[1-19] reported in the English literature. Most patients were elderly men suffering from long standing psoriasis. It is noticeable that psoriasis is a relatively common disease affecting about 1% of the population, and bullous pemphigoid is much rarer. So, the probability of the coexistence of two diseases by chance alone would be low. However, from the former case reports, the association between psoriasis and bullous pemphigoid was considered to be more than incidental. One study[10] revealed a higher prevalence of psoriasis in a bullous pemphigoid group than in a control group. Also, in all cases, psoriasis preceded the appearance of pemphigoid and bullae occurred on the pre-existing psoriatic lesions. As most patients developed bullous pemphigoid during or after some irritating treatment of psoriasis, these treatments were hypothesized to have a causative role in the development of bullous pemphigoid in psoriatic patients. The cause of fourteen cases[2, 3, 6, 8, 9, 16, 17] was focused on oral psoralen with long-wave UV radiation in the A range (PUVA) therapy. There are few reports of pemphigoid after PUVA therapy for non-psoriatic diseases, such as vitiligo, mycosis fungoides or parapsoriasis. Other suspected therapies were tar application and UV radiation in 6 cases[4, 5, 7, 19], anthralin and UV radiation in 1 cases[7], UV-B radiation only in 2 cases[12, 14], anthralin[7] and dithranol[8] application in 2 cases, tar[8, 19] in 3 cases, salicylic acid[7], sun-exposure[8] and lipoxygenase[13] in one case each, respectively.

Several mechanisms have been suggested to explain the appearance of bullous pemphigoid in psoriasis treated with UV radiation or irritating therapies. Person et al.[4] revealed that anti-psoriatic therapies may exacerbate pre-existing subclinical bullous pemphigoid. In support of this hypothesis, UV radiation has experimentally induced bullae on clinically normal skin in patients with bullous pemphigoid[20]. Koeber et al.[7] suggested that therapeutic modalities could result in bullous pemphigoid as a manifestation of a Koebner-like phenomenon. Abel et al.[2] suggested that PUVA triggers the autoimmune reaction de novo. Because PUVA is known to modify cellular DNA and nuclear proteins antigenically, it can also alter basement membrane proteins, such as the bullous pemphigoid antigen. In addition, PUVA can also alter the immunologic reactivity of T helper and sup-

pressor cells, resulting in the develpoment of autoantibodies against native proteins[16]. Another proposed mechanism[14] involves a physical breakdown of the plasma-epidermal barrier by the UV radiation, thereby exposing the epidermis to plasma antibodies and complements.

Recently, several case reports of patients with coexisting bullous pemphigoid and psoriasis in whom irritating treatments were not associated, have alternatively supported non-therapeutic induction of bullous pemphigoid in psoriatics[1, 4, 8, 10, 11, 15, 18, 21-23]. The much higher incidence of psoriasis among patients with bullous pemphigoid[10] reduced an isolated role of irritating treatment-induced bullous pemphigoid, as well as arguing against only coincidence. Attention is now being towards a possible immunological association between the two diseases. George[16] claimed that the participation of T cells in the pathogenic process of psoriasis predispose a patient to form various autoantibodies, including anti-bullous pemphigoid types. Another mechanism[24] proposed is based on biochemical characteristics of psoriasis, that is, hyper-reactivity of the neutrophils and extensive penetration of neutrophils to a psoriatic plaque, which results in massive degranulation with release of neutral proteinase and elastase. The neutral proteinase of epidermal and neutrophil origin are not inhibited sufficiently by the serum or tissue inhibitors in psoriasis, resulting in damage to the basement membrane zone. Futhermore, serum α1-proteinase inhibitor was significantly reduced in patients with stationary psoriasis and in symptom free psoriatics. Some data[24] showed that the basement membrane zone was a primary substrate for human neutral elastase, which was found to be directed against hemidesmosomes and cleaved the epidermis from the dermis around or above bullous pemphigoid antigen. This fact may explain the vulnerability of psoriatics to the exogenous stimuli inducing basement membrane damage.

Chen et al.[18] recently described a case of coexistence of psoriasis with a unique IgG-mediated subepidermal bullous dermatosis characterized by a novel 200kD lower lamina lucida autoantigen which was distinct from the other known autoantigens in documented cases of subepidermal bullous disease. They suggested that a novel subepidermal bullous disease might develop in the cases of coexistence with psoriasis, instead of bullous pemphigoid. Saeki et al.[17] also demonstrated a case of pustular psoriasis followed by bullous disease, which was considered to be a novel autoimmune blistering disease with anti-basement zone antibodies against an antigen other than that of bullous pemphigoid or epidermolysis bullosa aquisita.

The etiologic cause of our case could not be identified exactly. The small doses, 280mJ/cm^2, of UVB are not thought to induce mechanical and immunological changes in the skin. The time discrepancy between UVB treatment and bullae development, and a 6-month interval for generalized development, cannot be explained for latency, although a delayed onset of bullous pemphigoid[9] that developed 4 weeks after discontining PUVA treatment in psoriatic patient was reported. Therefore, it may be suggested that some exogenous factors, such as UV radiation, and endogenous factors, including immunologic and biochemical disturbances of psoriasis are related to the development of bullous pemphigoid in our patient.

REFERENCES

1. Bloom D. Psoriasis with superimposed bullous eruption. Med J Rec 130:246-248, 1929.
2. Abel EA, Bennett A. Bullous pemphigoid: Occurrence in psoriasis treated with psoralens plus longwave ultraviolet radiation. Arch Dermatol 115: 988-989, 1979.
3. Thomson K, Schmidt H. PUVA-induced bullous pemphigoid. Br J Dermatol 95:568-569, 1976.
4. Person JR, Rogers RS. Bullous pemphigoid and psoriasis: does subclinical bullous pemphigoid exist? Br J Dermatol 95:535-540, 1976.
5. Ahmed AR, Winkler NW. Psoriasis and bullous pemphigoid. Arch Dermatol 114:845, 1977.
6. Robinson JK, Baughman RD, Provost TT. Bullous pemphigoid induced by PUVA therapy. Is this the aetiology of the acral bullae produced during PUVA treatment? Br J Dermatol 99:709-713, 1978.
7. Koeber WA, Price NM, Watson W. Coexistence psoriasis and bullous pemphigoid. Arch Dermatol 114:1643-1646, 1978.
8. Stuttgen G, Kentsch V. Psoriasis and pemphigoid positive correlation. Acta Derm Venereol (Suppl) (Stockh) 87:99-101, 1979
9. Albergo RP, Gilgor RS. Delayed onset of bullous pemphigoid after PUVA and sunlight treatment of

psoriasis. Cutis 30:621-624, 1982.
10. Grattan CEH. Evidence of an association between bullous pemphigoid and psoriasis. Br J Dermatol 113:281-283, 1985.
11. Grunwald MH, David M, Feuerman EJ. Coexistence of psoriasis vulgaris and bullous disease. J Am Acad Dermatol 13:224-228, 1985.
12. Di Silverio A, Vignini M, Gabba P et al. Psoriasis-pemphigoid association. Description of a case. G Ital Dermatol Venereol 124;359-361, 1989.
13. Hisler BM, Blumental NC, Aronson PJ et al. Bullous pemphgoid in psoriatic lesions. J Am Acad Dermatol 20:683-684, 1989.
14. Weber PJ , Salazar JE. Bullous eruption in a psoriatic patients. Arch Dermatol 125:690, 693-694, 1989.
15. Smith WDF, Jones MSL, Stewart TW et al. Bullous pemphgoid occurring in psoriatic plaque in association with Hashimoto's thyroiditis. Clin Exp Dermtol 16:389-391, 1991.
16. Geroge PM. Bullous pemphigoid possibly induced by psoralen plus ultraviolet A therapy. Photodermatol Photoimmunol Photomed 11:185-187, 1995.
17. Saeki H, Hayashi N, Komine M et al. A case of generalized pustular psoriasis followed by bullous disease: an atypical case of bullous pemphigoid or novel bullous disease? Br J Dermatol 134:152-155, 1996.
18. Chen KR, Shimizu S, Ishiko A et al. Coexistence of psoriasis and an unusual IgG-mediated subepidermal bullous dermatosis: identification of a novel 200-kDa lower lamina lucida target antigen. Br J Dermatol 134:340-346, 1996.
19. Kirtschig G, Chow ETY, Venning VA et al. Acquired subepidermal bullous diseases associated with psoriasis ; a clinical, immunopathological and immunogenetic study. Br J Dermatol 135:738-745, 1996.
20. Cram DL, Fukuyama K. Immunohistochemistry of ultraviolet-induced pemphigus and pemphigoid lesions. Arch Dermatol 106:819-824, 1972.
21. Russel B. Bullous pemphigoid, hypertension and psoriasis. Br J Dermatol 72:318-319, 1960.
22. Weltfriend S, David M, Feuerman EJ. Bullous pemphigoid in a patient with psoriasis. Harefuah 105:218-219, 1983.
23. Nicoletti A, Riva MI, Crippa D et al. Psoriasis and bullous pemphgoid. Description of 3 clinical cases. G Ital Dermatol Venereol 24:277-279, 1989.
24. Glinski W, Jarzabek-Chorzelska M, Kuligowski M et al. Basement membrane zone as a target for human neutrophil elastase in psoriasis. Arch Dermatol Res 282:506-511, 1990.