

LETTER TO THE EDITOR

Anti-laminin γ 1 pemphigoid with IgE autoantibodies

Editor

Anti-laminin γ 1 pemphigoid, also known as anti-p200 pemphigoid, is an uncommon type of autoimmune subepidermal bullous disease.¹ Circulating immunoglobulin (Ig) G antibodies were revealed to have reactivity to the dermal antigen laminin γ 1 although their pathogenicity remains to be elucidated.¹ The Ig isotype of the autoantibodies in anti-laminin γ 1 pemphigoid is mainly IgG whereas the IgA autoantibodies have also been reported.² Lesional and circulating IgE autoantibodies have been detected in a considerable number of cases with other pemphigoid diseases, such as bullous pemphigoid (BP)³ and epidermolysis bullosa acquisita.⁴ To our knowledge, however, the production of IgE autoantibodies in anti-laminin γ 1 pemphigoid has not been investigated. Here, we present a case of anti-laminin γ 1 pemphigoid with IgE autoantibodies.

A 78-year-old Japanese man complaining of pruritic erythema and blisters was referred to our hospital. The patient did not have a past history of allergic diseases, such as atopic

dermatitis. Erythema, erosions and few small and tense blisters spread over the whole body with pigmentation, whereas mucosal lesions were not presented (Fig. 1a,b). Blood tests revealed eosinophilia (1830/ μ L) and elevated serum IgE levels (18 266 U/L), but serum anti-BP180 antibodies were negative. A skin biopsy specimen taken from the left thigh revealed subepidermal blister with infiltration of many eosinophils and few neutrophils (Fig. 1c,d). Direct immunofluorescence of the skin biopsy specimen showed linear deposition of IgG, C3 and IgE antibodies at the basement membrane zone (BMZ; Fig. 2a,b,c). Indirect immunofluorescence of 1 mol/L NaCl-split healthy human skin sections revealed that serum IgG and IgE antibodies reacted with the dermal side of the BMZ (Fig. 2d,e). An enzyme-linked immunosorbent assay was negative for IgG antibodies to type VII collagen. Immunoblot analyses of purified laminin detected serum IgG and IgE antibodies against laminin γ 1, confirming the diagnosis of anti-laminin γ 1 pemphigoid with IgG and IgE autoantibodies (Fig. 2f,g). Topical corticosteroid therapy (0.05% difluprednate) was effective to control skin lesions without recurrence. Blood eosinophil counts decreased accordingly (540/ μ L) in 6 months although serum total IgE levels remained elevated (28 784 U/L).

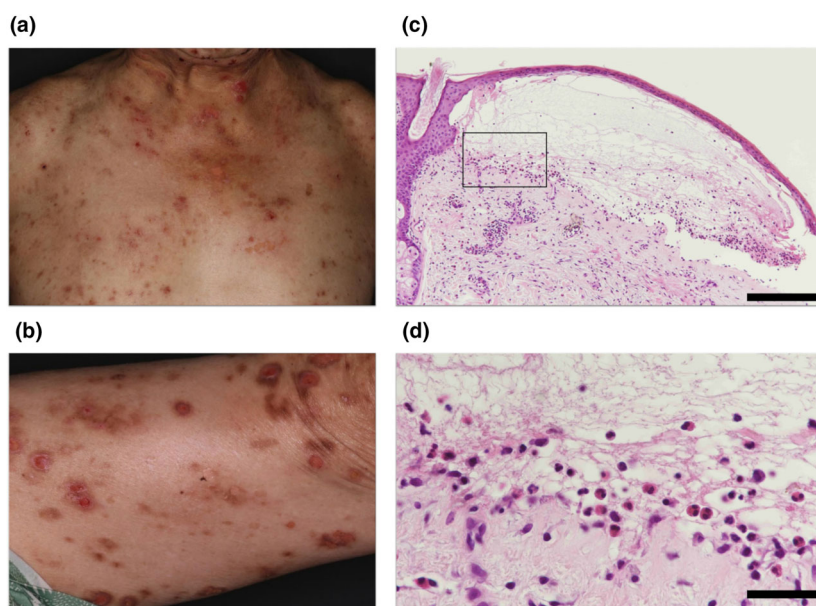


Figure 1 Clinical manifestations and histological analysis. (a, b) Skin lesions in the trunk and the left thigh. (c, d) Haematoxylin and eosin staining of a skin biopsy specimen taken from the left thigh. Scale bars, (c) 250 μ m, (d) 50 μ m, respectively.

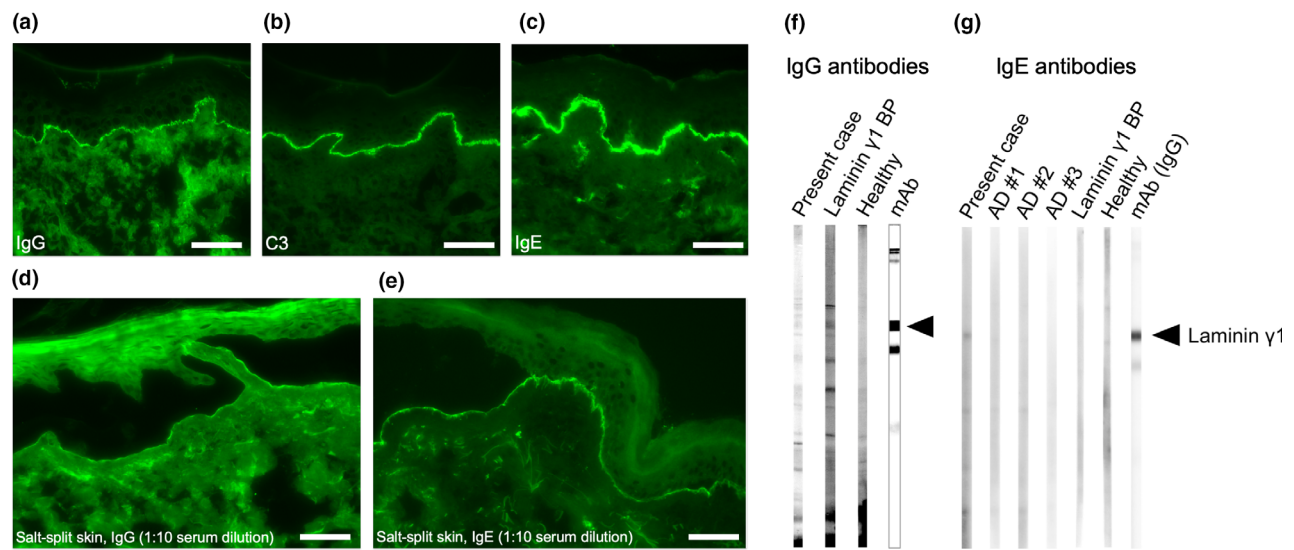


Figure 2 Immunofluorescence and immunoblotting studies. (a, b, c) Direct immunofluorescence for (a) IgG, (b) C3 and (c) IgE. Scale bars, 50 μm. (d, e) Indirect immunofluorescence for (d) IgG, and (e) IgE using 1 mol/L NaCl-split healthy human skin. IgE was detected by goat anti-human IgE antibodies [DyLight 488] (1 : 100 dilution, NBP1-74936, Nobus Biotechnological, Centennial, CO, USA). The serum dilution was 1 : 10 in indirect immunofluorescence. Scale bars, 50 μm. (f, g) Immunoblotting of purified human laminin 211/221 (CC085, Chemicon/Merck Millipore, Temecula, CA, USA) detecting (f) the IgG circulating autoantibodies by colorimetric method as previously reported¹ and (g) IgE circulating autoantibodies by chemiluminescent method in the present case. AD #1–#3, sera from patients with atopic dermatitis (serum IgE, 11 000 U/L; 16 000 and 25 000 U/L, respectively). The serum dilution was 1 : 10. Goat anti-human IgE antibodies (1 : 100, Nobus) were applied and then were reacted with Histofine simple stain MAX-PO (G) (414161, Nichirei Bioscience, Tokyo, Japan) for subsequent chemiluminescence. mAb, mouse anti-human laminin γ1 IgG monoclonal antibody (sc-13144, Santa Cruz Biotechnology, Dallas, TX, USA) detecting laminin γ1 bands (arrowheads).

To our knowledge, this is the first case of anti-laminin γ1 pemphigoid with IgE autoantibodies coincided with eosinophilia, tissue eosinophil infiltration and elevated serum IgE levels. The potential roles for IgE autoantibodies have been implicated in BP despite controversies in their pathogenic contribution. For example, systemic treatment with anti-IgE antibodies was shown to be effective in BP, suggesting the pathogenic role of IgE autoantibodies.³ In addition, it was reported that the IgE autoantibodies, not IgG autoantibodies, may cause pruritic erythema in a human skin-grafted mouse model of BP.⁵ It was also suggested that IgE autoantibodies may be associated with the infiltration of eosinophils and mast cells, which may lead to accompanying pruritus, in the lesional skin of the patients with BP via their FcεRI.³ In the present case, it was suggested that IgE autoantibodies might also cause itchy erythema in the present case though the mechanism of eosinophilia and elevated serum IgE levels remains unknown.

In summary, we report a case of anti-laminin γ1 pemphigoid with IgE autoantibodies as well as IgG autoantibodies. The presence of IgE autoantibodies might be related to pruritic erythema in this case with anti-laminin γ1 pemphigoid.

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