

SHORT COMMUNICATION

Bullous Pemphigoid in Infancy Showing Epitope-spreading Phenomenon: Recovery with Topical Therapy

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Infantile bullous pemphigoid (BP) usually presents palmoplantar lesions, which spread to entire body (1). We report an infantile BP patient with wide-spread skin lesions and multiple IgG autoantibodies as possible epitope-spreading phenomena.

CASE REPORT

A 6-month-old Japanese boy developed quickly progressing generalised skin lesions. Vaccination was not given in previous 4 weeks. Physical examination revealed extensive annular plaques with blisters and excoriations on entire body (Fig. 1). Laboratory examinations showed increases in leucocytes (32,500/ $\mu$ l; normal, 3,900–9,300/ $\mu$ l), eosinophils (40.5%; normal, 0.2–4.1%) and C-reacting protein (1.12 mg/dl, normal <0.3 mg/dl). The results of commercially available enzyme-linked immunosorbent assay kits (ELISAs) (MBL, Nagoya, Japan) were negative for desmogleins

1 and 3, but positive for BP180 NC16a domain (index >1,000, normal <9) and BP230 (index 19.64, normal <9).

Histopathology revealed subepidermal blisters and eosinophilic infiltration in both blister and upper dermis (Fig. 2a, b). Direct immunofluorescence showed linear deposits of IgG and C3 to basement membrane zone (BMZ). Indirect immunofluorescence using normal human skin revealed circulating IgG anti-BMZ autoantibodies at 1:160 (Fig. 2c), which reacted with epidermal side of 1M NaCl-split normal human skin (Fig. 2d).

Immunoblotting of normal human epidermal extract detected circulating IgG autoantibodies to BP180, but not BP230. Immunoblotting also showed IgG reactivity with recombinant proteins of both NC16a and BP180-C-terminal domains of BP180. Immunoblotting of concentrated culture supernatant of HaCaT cells demonstrated IgG reactivity with LAD-1.

The patient was treated only with 0.12% betamethasone valerate and 0.05% clobetasone butyrate ointments, because the parents requested not to apply systemic corticosteroids. The treatment was effective and led to remission within 3 months. For following 3 months, no recurrence was observed.

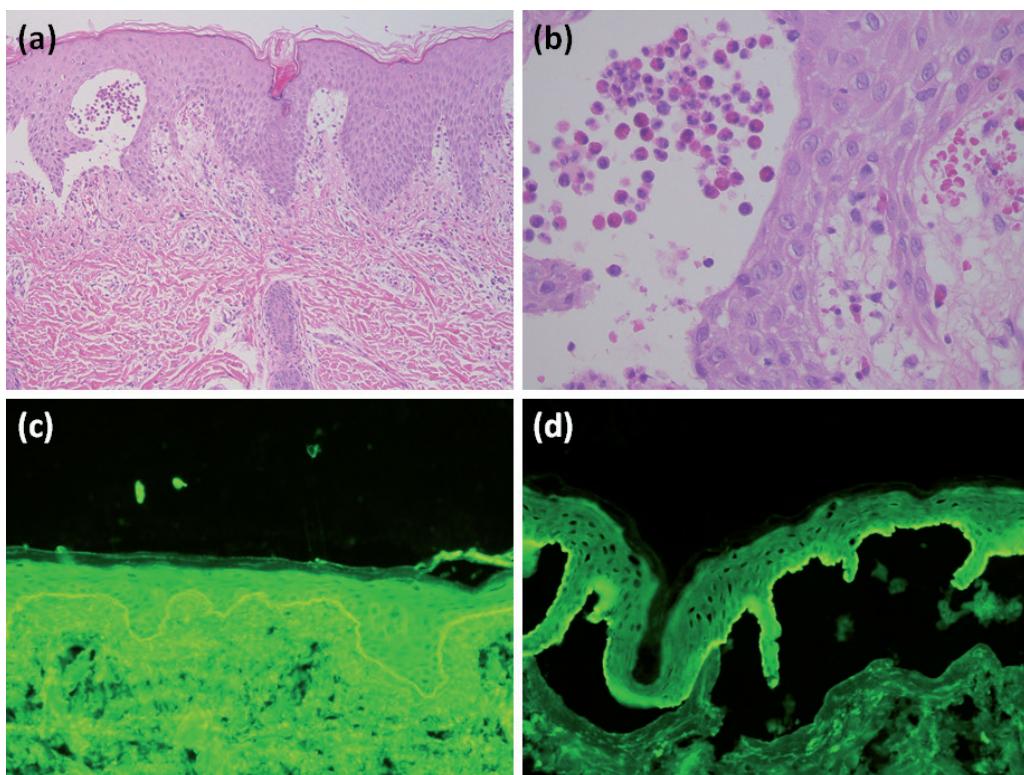
DISCUSSION

We diagnosed the eruptions as infantile BP with IgG autoantibodies to various domains of BP180 (NC16a domain, C-terminal domain and LAD-1) and BP230. Our patient was characterised clinically by generalised skin lesions and immunologically by possible intra- and intermolecular epitope-spreading phenomena.

In a previous study about half of infantile BP patients showed progress from the localised skin lesions to the whole body (1). An other study of adult BP patients showed that intra- and intermolecular epitope-spreading phenomena in BP180 and BP230 tended to occur in those with severe disease (2). These findings tempted us to speculate that the progress of skin lesions in infantile BP is also associated with epitope-spreading phenomena. However, dual reactivity with BP180 and BP230 was detected in infantile BP patients not only with extensive skin lesions on the entire body (1) but also with the localised skin lesions on the extremities (3) and the acral regions (4). In addition, one infantile



Fig. 1. A clinical finding of extensive annular plaques with blisters and excoriations on entire body. A written permission is given to publish this figure.



*Fig. 2.* Histopathological and immunofluorescence features. Histopathological findings of subepidermal blisters and eosinophilic infiltration in both blister and upper dermis (haematoxylin and eosin stain, original magnifications: a  $\times 100$  and b  $\times 400$ ). The result of IgG indirect immunofluorescence of normal human skin showing circulating IgG anti-BMZ autoantibodies at 1:160 (c) (original magnification:  $\times 200$ ). The result of IgG indirect immunofluorescence of 1M NaCl-split normal human skin detecting the positive reaction to the epidermal side (d) (original magnification:  $\times 200$ ).

BP showed no correlation between disease severity and serum levels of autoantibodies, suggesting that infantile BP with high antibody titres may not need aggressive therapy (3). The results of this study is confirmed well by the findings in our patient. Thus, although our patient showed wide-spread skin lesions and high levels of serum autoantibodies with extensive epitope-spreading phenomena, the patient could be easily treated only with topical corticosteroids. These results may indicate that infantile BP may have different immunological features from those in adult BP, in terms of disease severity and progress, serum levels of autoantibodies and response to treatments.

The authors declare no conflict of interest.

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