Case Report

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Bullous dermatosis on legs of elderly: A new clinical entity?

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Summary **A lot of diseases occur on the skin of elderly persons. We report four elderly cases of bullous dermatosis that did not meet various differential diagnoses. Japanese, heart failure, atrophic skin and leg edema probably due to aging, as well as flaccid or tense bullae localized in legs were the common factors to our patients. Such conditions may be increased in coming aging society. Accordingly, it is worth regarding such symptom as the new clinical entity, which may comfort patients with similar condition and attract further attention.**

Keywords: Leg, bulla, elderly

1. Introduction

A lot of diseases occur on the skin of elderly persons (*1,2*). For example, when we see bullous formation in elderly patients, pemphigus, bullous pemphigoid or insect bite will be considered as differential diagnoses. Recently, we experienced four elderly patients with bullous skin changes on their legs. Because their manifestations did not meet various differential diagnoses, we suspect they may be a new clinical entity.

2. Case Report

2.1. *Case 1*

An 89-year-old Japanese female visited our hospital, for the treatment of tense or flaccid bullae of her legs that started to appear 4 months ago (Figure 1a). She had been diagnosed as having chronic heart failure and subsequent leg edema for a long time. The skin had become atrophic and fragile probably by aging. As laboratory findings, the index of an enzyme-linked immunosorbent assay (ELISA) with the recombinant protein of BP180 NC16a domain was 12.4 (normal range, < 9), whereas that with recombinant desmoglein 1 or 3 was negative (< 3.0 index). We suspected bullous pemphigoid, but a skin biopsy from the eruption revealed the formation of both subepidermal and intraepidermal bullae as well as subepidermal edema (Figures 1b and 1c). Acantholysis was not found. Infiltration of lymphocytes and eosinophils in the upper dermis were mild and slight, respectively.

Deposition of IgG or C3 along the basement membrane zone or keratinocyte cell surface was not found by direct immunofluorescence. Indirect immunofluorescence indicated that IgG antibodies against basement membrane zone or keratinocyte surface were absent in the patient's serum. Furthermore, the epidermal side of 1 mol/L NaCl-split skin did not react with the serum of the patient.

Taken together, autoimmune bullous diseases were denied. We also suppose the presence of stasis dermatitis, but ultrasonography of the leg veins did not detect valve failure or deep venous thrombus. She was treated by acrinol macrogol ointment as well as elastic stockings. Existing bullae epithelized after one week, and newborn of bullae stopped after about one year without further treatment. BP180 index reduced to be within normal limits spontaneously.

2.2. *Case 2*

A 97-year-old Japanese male had noticed skin fragility, pitting edema and tense bullae on both legs (Figure 2) two months before the first visit to our hospital. Autoimmune bullous diseases were suspected at the first visit. However, the indexes of ELISAs with the recombinant protein of BP180 NC16a domain or desmogleins were within normal limits (all values < 5 index). We did not perform skin biopsy or direct immunofluorescence because consent from the patient

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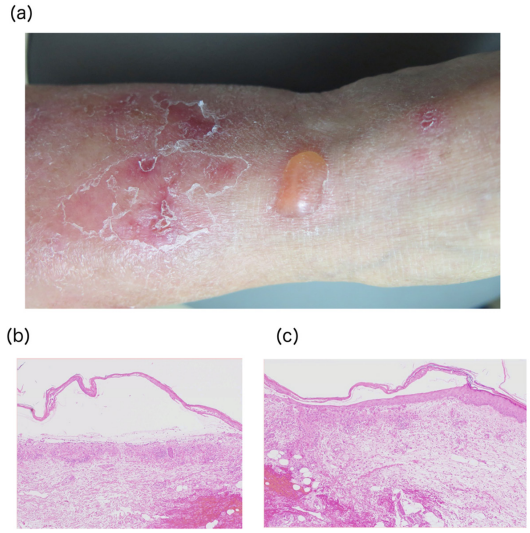

Figure 1. The clinical picture and histopathological findings of case 1. (a) Edema and tense bulla of right leg. Scars of previous bullae were also observed. **(b)** Histopathological subepidermal bulla. **(c)** Histopathological intraepidermal bulla formation.

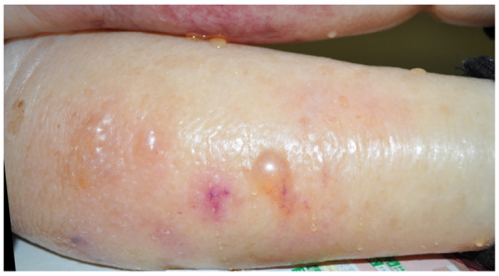

Figure 2. The clinical picture of case 2. Edema and multiple tense bullae of left leg.

could not be obtained. Indirect immunofluorescence was not performed due to the lack of patient serum. Chronic heart failure was found by heart function tests, and he was treated by acrinol macrogol ointment and by resting bed with legs up. The bullae were healed and the patient has not visited the hospital again.

2.3. *Case 3*

A 96-year-old Japanese female visited our hospital because of flaccid bulla suddenly appeared on her fragile skin of left leg (Figure 3). Skin biopsy and direct/indirect immunofluorescence were not performed because of her age. No remarkable abnormities were found in laboratory findings including ELISA indexes of BP180 NC16a domain, desmoglein 1, or desmoglein 3 (all values < 5 index), and the patients were also treated with acrinol macrogol ointment and resting. The bulla was epithelized within two weeks, and did not recurred to date.

2.4. *Case 4*

An 83-year-old Japanese male suffered from persistent

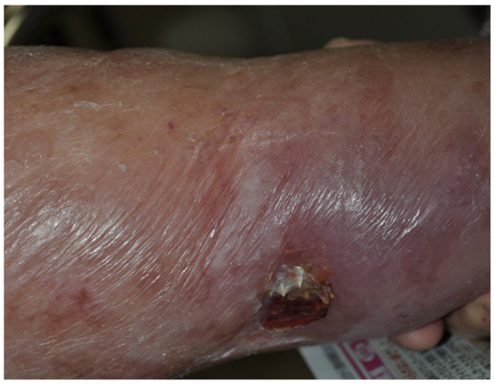

Figure 3. The clinical picture of case 3. Ruptured flaccid bullae of left leg.

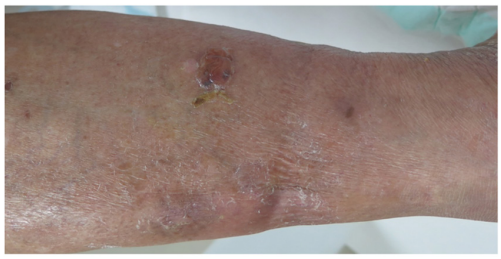

Figure 4. The clinical picture of case 4. Pitting edema (indicated by socks marks) and small flaccid bulla of right leg.

leg edema caused by heart failure. Then flaccid bullae started to appear repeatedly (Figure 4). ELISA indexes for BP180 NC16a domain, desmoglein 1 or desmoglein 3 were all negative (all values < 3 index). Although skin biopsy and direct/indirect immunofluorescence were not performed, the symptom was healed by acrinol macrogol ointment and resting. New born of bullae has stopped for more than half a year.

3. Discussion

We considered autoimmune bullous diseases, stasis dermatitis, diabetic bulla, insect bite, burn, and contact dermatitis as the differential diagnoses of the eruptions seen in our patients. Autoimmune bullous diseases were denied by the presence of both tense and flaccid bullae, negative direct/indirect immunofluorescence, and negative ELISA indexes for BP180 or desmogleins: Slightly increased BP180 index in case 1 may be the false positive. Furthermore, there were no past histories of diabetics, insect bites, heat source exposure, or contactant exposure in these patients. There have been no previous reports of bullous formation in patients with stasis dermatitis.

Elderly Japanese, heart failure, atrophic skin, and leg edema as well as flaccid or tense bullae localized in legs were the common features to our patients. Thus, the reported cases are characterized by bulla formation based on edema and fragility of the senile leg skin, and such condition will be increased in coming

aging society. As far as we searched, we could not find similar cases in databases such as Pubmed, and it should be worth regarding such symptom as the new clinical entity, which may comfort patients with similar conditions and attract further attention. Dermatologists may sometimes have seen similar conditions, but have not thought much about it.

As a limitation, biopsy or direct/indirect immunofluorescence could not performed in cases 2-4. To establish the disease concept, accumulation of patient number and additional examinations including skin biopsy or immunofluorescence are needed in the future.

References

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