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SHORT COMMUNICATION

Tonic Water-induced Generalized Bullous Fixed Eruption

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Fixed eruption characteristically recurs at the same site or sites with each exposure to the causative agent (1). It sometimes affects the mucosal region, leading to misdiagnoses, including erythema multiforme majus, Behçet's disease, Stevens-Johnson syndrome and herpes simplex (2). We report here a confusable case of generalized bullous fixed eruption induced by tonic water.

CASE REPORT

A 26-year-old Japanese man was referred to our department for evaluation of repeated episodes of mucocutaneous erythema. Physical examination revealed multiple pigmented macules on the extremities, and erythematous erosions on the lips, oral mucosa and external genitalia (Fig. 1). He denied taking any medical drug. Laboratory examination showed no remarkable changes except for a high level of C-reactive protein (9.13 mg/dl; normal <0.30 mg/dl). Behçet's disease was initially suspected and a skin biopsy was performed from an erythema site on the right foot. Histopathologically, perivascular lymphocytic infiltrate in the upper dermis and dyskeratotic keratinocytes in the epidermis were noted. The eruptions spontaneously regressed within one week. Since the histopathology strongly suggested the lesion to be a drug eruption, we again took a detailed medical history, which revealed that the rash had occurred after drinking a cocktail containing tonic water. To confirm the diagnosis, we first conducted closed patch testing with tonic water and quinine on both affected and unaffected regions, but the tests yielded negative results. We then performed an oral challenge test with 50 ml tonic water. This challenge test re-provoked the mucocutaneous lesions. On the basis of these findings, a diagnosis of generalized bullous fixed eruption induced by tonic water was made. No recurrence has been noted since the patient stopped drinking tonic water.

DISCUSSION

Fixed eruption due to tonic water was first reported by Kubota in 2003 (3). Since then, sporadic case reports have been published. To our knowledge, there have been only 12 reported cases of fixed eruption due to tonic water in the English and Japanese literature (4–8). We reviewed these cases and found that there were 5 male cases and 5 female cases, with the patients ranging in age from 23 to 57 years, with a mean of 31.0 years (detailed information is missing in 2 cases). In general, skin tests and drug-induced lymphocyte stimulation test are the first-line diagnostic procedures when drug eruption is suspected. If these tests are negative or unavailable, an oral challenge test is necessary to rule out allergy (9). All of the 10 cases in our review required an oral challenge test for diagnosis.

Tonic water is often used as a cocktail mixer, and exposure to it may not be unusual in daily life. Typically,

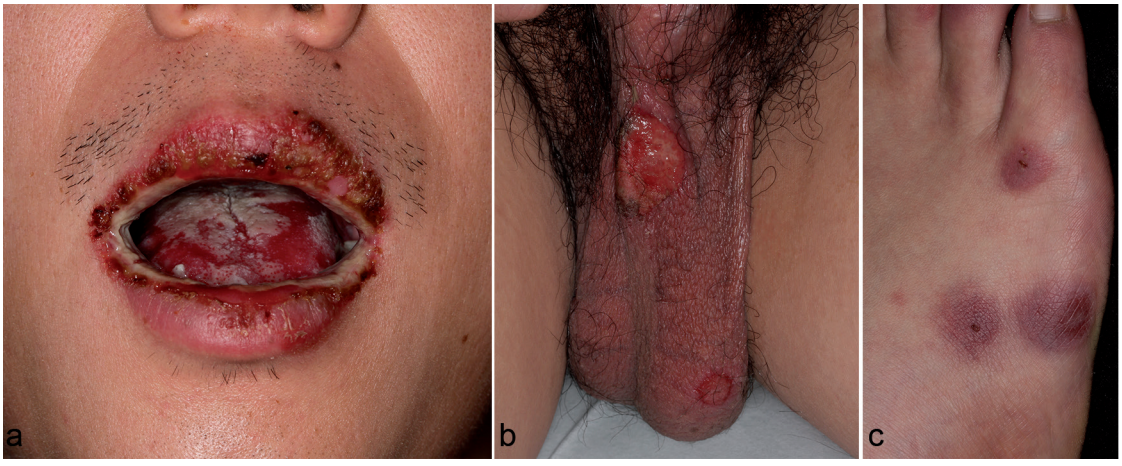

Fig. 1. (a) Erythematous erosions on the lips and oral mucosa. (b) Erythematous erosions on the external genitalia. (c) Multiple pigmented macules on the right foot.

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fixed eruption is caused by medical drugs, but it can be caused by food or drinks, such as strawberries, asparagus, cheese crisps and tonic water. Thus, even in cases with no apparent drug history, tonic water should be included among the possible causative agents. In our case, disseminated skin lesions were observed over the entire body, including the mucosal region. At first we thought that the patient had Behçet's disease because he had had a high fever, skin rash and mucosal erosions with no drug history. Our review also disclosed a relatively high rate of mucosal involvement (9 of 10 cases), in which erythema multiforme majus, Behçet' s disease, herpes simplex and Stevens-Johnson syndrome can develop. Oral mucosal fixed eruption may easily be confused with these diseases (2, 10, 11). Fixed eruption, once appropriately diagnosed, can be prevented, and should be kept in mind as a differential diagnosis of these diseases.

The authors declare no conflicts of interest.

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