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Pediatric lime-induced phytophotodermatitis in Japan: a case report

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Dear Editors,

Phytophotodermatitis is a non-allergic contact dermatitis caused by exposure to furocoumarins, phototoxic agents found in certain plants, followed by exposure to sunlight [1–4]. Herein, we present a rare case of lime-induced phytophotodermatitis in a Japanese pediatric patient.

A 7-year-old boy with a history of food allergies and atopic dermatitis presented to our department with a 1-month history of a hand eruption. Four days before the onset of the skin lesion, he had squeezed limes. Three days prior to onset, he squeezed limes again and subsequently bathed in seawater while exposed to sunlight (Figure 1A). Erythematous lesions were first noted on the dorsal aspects of both thumbs and index fingers and subsequently developed into small vesicles, without pruritus or pain (Figures 1B,C). No skin lesions were observed on other sun-exposed areas or lime-exposed areas, including the face, neck, lower extremities, or palms. There was no history of exposure to potential contact allergens, such as rubber products, before the onset of the lesions.

At presentation, the erythema and vesicles had resolved, leaving well-demarcated pigmentation extending from the dorsal aspects of both thumbs to the medial sides of the index fingers, with confluent pigmentation on the third and fourth fingers of the left hand (Figure 1D). Based on the characteristic clinical course and history, a diagnosis of phytophotodermatitis was made. The patient was advised to apply emollients and practice photoprotective measures, and the skin lesions resolved without residual pigmentation 4 months after onset.

Phytophotodermatitis is primarily a clinical diagnosis and generally does not require additional examinations such as phototesting or photopatch testing [1]. The absence of lesions at sites exposed to either sunlight or lime alone argues against photosensitivity or lime-induced contact dermatitis, while the sharply demarcated lesion distribution corresponding to the sites of lime and sunlight supports a diagnosis of lime-induced phytophotodermatitis.

Pediatric lime-induced phytophotodermatitis is rarely reported in Japan, and to our knowledge, this is the first reported case of lime-induced phytophotodermatitis in a Japanese child. This may be because exposure to lime is uncommon among Japanese children and the diagnosis may not be readily considered in routine clinical practice. Phytophotodermatitis typically develops within 48 h after exposure to furocoumarins and sunlight [1]. In this case, skin lesions were noted 3 days after exposure to lime and sunlight. Such a delayed onset can obscure the causal relationship for patients, caregivers, and healthcare professionals alike, increasing the risk of misdiagnosis as contact dermatitis, infectious skin diseases, thermal burns, or child abuse [5]. Therefore, recognizing characteristic lesion morphology and obtaining a detailed history of recent exposure to furocoumarin-containing plants and

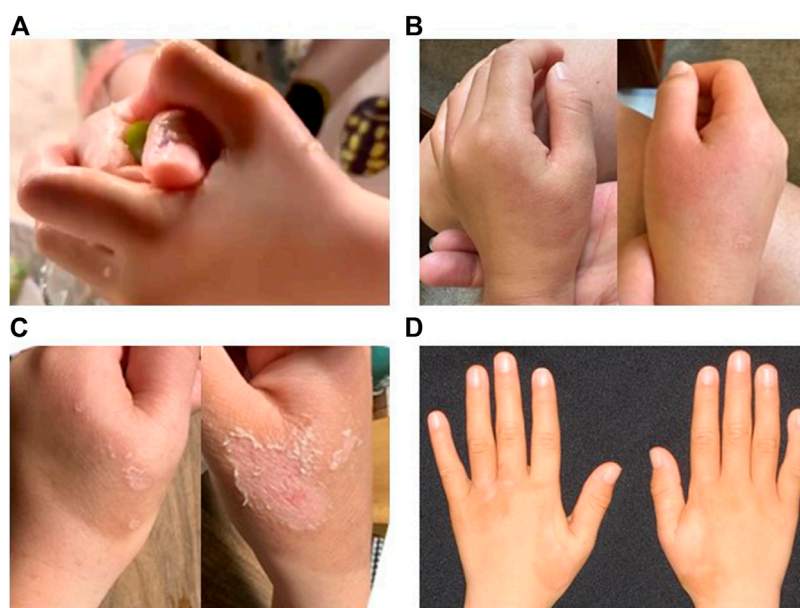


FIGURE 1

(A) The patient squeezing a lime. (B) Cutaneous lesions on the day of onset. Faint erythema appeared on the thumbs and index fingers of both hands 3 days after exposure to lime and sunlight. (C) Five days after onset. Vesicle formation gradually developed and subsequently ruptured. (D) At the patient's first visit to our department. Well-demarcated pigmentation extending from the dorsal aspects of both thumbs to the index fingers, with confluent pigmentation also observed on the left third and fourth fingers.

sunlight are essential for an accurate diagnosis and differentiation from other dermatological conditions.

authors contributed to the article and approved the submitted version.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

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Ethics statement

According to the institutional ethics policy of the National Center for Child Health and Development, formal approval from the ethics committee is not required for case reports involving up to three patients, provided that written informed consent is obtained. In this case, written informed consent was obtained from the patient's legal guardians for the use of clinical data and publication of this report, including the accompanying figure.

Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author contributions

TY, RF, and KH managed the patient and collected clinical data. KY and TF supervised the case. TY drafted the manuscript. All

Generative AI statement

The author(s) declared that generative AI was not used in the creation of this manuscript.

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References

1. Dumitrescu CG, Jijie A-R, Manea HC, Moacă E-A, Ifode A, Minda D, et al. New insights concerning phytophotodermatitis induced by phototoxic plants. *Life* (2024) 14(8). doi: 10.3390/life14081019
2. Abugroun A, Gaznabi S, Natarajan A, Daoud H. Lime-induced phytophotodermatitis. *Oxford Med Case Rep* (2019) 2019(11):470–2. doi: 10.1093/omcr/omz113
3. Hatcher VR, Miller CK. Phytophotodermatitis. *New Engl J Med* (2024) 391(21):2035. doi: 10.1056/NEJMim2410140
4. Pomeranz MK, Karen JK. Phytophotodermatitis and limes. *New Engl J Med* (2007) 357(1):e1. doi: 10.1056/NEJMim053778
5. Carlsen K, Weismann K. Phytophotodermatitis in 19 children admitted to hospital and their differential diagnoses: child abuse and Herpes simplex virus infection. *J Am Acad Dermatol* (2007) 57(5 Suppl. 1):S88–91. doi: 10.1016/j.jaad.2006.08.034