

Erythema, bullae, and vesicles on the hands of a dental student

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A 24-year-old female dental student with no known medical history reported a 3- to 4-day history of painful blisters on the dorsal surface of both hands (*Figure*). She reported that the blisters began 1 to 2 days after she was boating at a local lake. While on the boat, she reported that she was preparing mojitos, a traditional Cuban cocktail that contains freshly squeezed limes, rum, sugar, mint, and carbonated water.

What is the diagnosis?



Figure. Painful blisters (vesicles and bullae) on the dorsal surface of the hand.

DIAGNOSIS: Phytophotodermatitis.

DISCUSSION

Phytophotodermatitis (phytophoto: plant + sun) is a phototoxic reaction that occurs in skin exposed to sunlight after contact with plants containing furanocoumarins. Furanocoumarins are a class of organic chemical compounds produced by plants such as limes, figs, celery, parsley, parsnips, and carrots. The most potent phototoxic furanocoumarins are bergapten and psoralen. Limes, specifically Mexican limes, have a very high concentration of bergapten (1). Furanocoumarins have several medical and commercial uses. Bergapten is used in oral photochemotherapy of psoriasis and is added to some sunscreen lotions to promote tanning by increasing skin pigmentation.

Table. Differential diagnosis of bullous or vesicular lesions on sun-exposed areas of the hands

Porphyria cutanea tarda
Herpetic whitlow
Epidermolysis bullosa
Polymorphic light eruption

Psoralens are taken orally and/or applied topically as part of light therapy (PUVA: psoralen + ultraviolet A) for psoriasis and several other skin disorders. These uses of bergapten and psoralens exploit the high ultraviolet A absorbance of these compounds, which subsequently results in inhibition of DNA synthesis and augmentation of the normal melanocyte response to ultraviolet exposure (2).

Hyperpigmentation and vesicle or bullae formation are hallmarks of phytophotodermatitis. Skin that is exposed to lime and sunlight develops erythema within 24 hours and vesicles (or bullae in severe cases) at approximately 48 to 72 hours. Exfoliation occurs 10 to 14 days after the initial exposure. Pigment abnormalities may occur and persist for 6 to 12 months. Phytophotodermatitis has been referred to as “the other lime disease” (3, 4).

In general, phytophotodermatitis is commonly misdiagnosed as an allergic reaction. The differential diagnosis of bullous lesions on the hands is listed in the *Table*. It is important to consider this type of dermatitis, especially in patients who have had a recent trip to a tropical destination. Another unique aspect that is sometimes present in phytophotodermatitis is unusual shapes or patterns of erythema or vesicles. The rash may have abrupt cutoffs, scattered macules, or a linear streaky pattern (reflecting juice dripping off a part of the body) (5). Recent exposure to limes and unusual patterns of the skin lesions should make clinicians consider this in their differential diagnosis of bullous lesions on sun-exposed areas of skin.

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Phytophotodermatitis can nearly always be properly diagnosed if a complete history is obtained. The treatment of phytophotodermatitis is conservative and may consist of topical steroids (0.1% triamcinolone cream) and, if hyperpigmentation persists, bleaching agents (4% hydroquinone).

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