A tropical skin eruption

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A 21-year-old woman presented to the infectious disease clinic complaining of a three-day history of a rash on her hands, arms, upper back and thighs. The rash began on the day that she returned to Canada after a one-week vacation at a resort in Cuba. The rash appeared simultaneously on all sites, was nonpruritic and moderately tender. There was no history of fever, chills, myalgias, arthralgias or other systemic symptoms. The patient did not have any urinary, gastrointestinal, cardiac or pulmonary symptoms. She denied illicit drug use and was not taking any medication.

On examination, she was nontoxic and the only abnormalities were restricted to the skin examination. There was linear, red streaking on the right forearm (Figure 1, left), a tender red circular area (3×4 cm) on the right thigh, nonuniform red macules on the posterior aspect of the neck, and blisters between the fingers of the right hand (Figure 1, right).

What is your diagnosis?

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Figure 1) Left Linear red streaking on the patient's right forearm. **Right** Blisters between the fingers of the patient's right hand

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CLINICAL VIGNETTE

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DIAGNOSIS

The appearance of this patient's rash is typical of phytophotodermatitis – photosensitization from the psoralens found in lime juice. On further questioning, it was learned that on the day before the onset of the rash, the patient applied lime juice to her hair to lighten it. She then spent the remainder of the day in the sun.

DISCUSSION

Phytophotodermatitis is a phototoxic reaction (an enhanced sunburn) caused by skin contact with plant juices that contain photosensitizing substances, followed by intense sunlight exposure. The active photosensitizing agents in plant juices are psoralens, which are compounds that belong to the furocoumarin family. Many plants, the most notable of which are citrus plants such as limes and lemons, contain psoralens (1-4). Other common plants that can cause phototoxicity are shown in Table 1. In addition to local reactions, ingestion of psoralen-rich foods such as celery can cause generalized phototoxicity. Psoralens have been used in the treatment of skin depigmentation for centuries. As early as 1400 BC, inhabitants of India used bavahee seeds and other plants to induce hyperpigmentation in people with vitiligo (2). Phytophotodermatitis is described most frequently in people with both plant and sunlight exposure, such as vacationers (particularly to tropical beach destinations), children, agricultural workers, florists and gardeners (5).

TABLE 1
Common plants associated with phytophotodermatitis

Plant family	Common name of plant
Rutaceae	Lemon, lime, persian lime, bergamot
Umbelliferae	Celery*, carrots, parsley, parsnip, fennel, dill
Moraceae	Fig
Ranunculaceae	Buttercup
Cruciferae	Mustard

*May cause generalized photosensitivity after ingestion

Phytophotodermatitis closely resembles contact dermatitis or chemical burns. Its diagnosis is based on the presence of a rash (often with unusual and nonuniform shapes that are restricted to sun-exposed areas), recent exposure to photosensitizing plants and intense sunlight, and post-inflammatory hyperpigmentation (1,4). A detailed history and the pattern of the rash help differentiate phytophotodermatitis from other conditions. Information regarding recent travel and exposure to citrus fruits (particularly in alcoholic beverages or during food preparation) should be sought.

The rash occurs in areas where plant juice has come into contact with the skin; therefore, if citrus fruit has been squeezed into drinks or into food, the lesions may appear as linear streaks where droplets of plant juice have dripped down the affected body part. The hands and mouth are often involved secondary to eating and handling the offending plant. The rash typically appears 36 to 72 h after exposure to plant juice and sun. Lesions are heterogeneous in size and shape, ranging from red macules to areas that resemble second-degree burns, with tender erythematous areas, blisters and bullae. In severe cases, the rash is accompanied by systemic toxicity that includes fever, nausea and vomiting. The rash, erythema and vesiculation last for one to two weeks and are followed by a characteristic grey-brown healing hyperpigmentation (postinflammatory) that can persist for weeks or months (1,4).

Treatment is directed toward symptomatic relief. Interventions are aimed at decreasing the inflammatory response, and include cool wet dressings, soothing lotions, topical corticosteroids and systemic antipruritic agents (1). Systemic corticosteroids can be used in severe cases or when lesions are too extensive for topical therapy to be practical or effective (4). Sunscreen should be used to avoid any further hyperpigmentation when the patient is outside. Use of a bleaching agent such as 4% hydroquinone can be used if skin discoloration is bothersome (5).

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