A Chinese New Year Rash

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Case History

A 28-year-old man presented with a chief complaint of rashes all over his body. He had a history of a trip to Langkawi Island, a famous island resort off the west coast of Malaysia, over the Chinese New Year's weekend. According to him, he had a lot of fun with a group of friends at the sunny beach and the beautiful sea. There were no untoward incidents and they were perfectly well when they returned home after a 2-day trip. On the evening of the second day after his return, he noticed rashes appearing over his body, notably on shoulders and trunk. These rashes were little painful in nature.

On further questioning, the patient went on to give the history that when the group was having fun at the beach, they found a lime tree. According to the Chinese mythology, it is auspicious to bathe with lime water during the Chinese New Year. They shook the tree to obtain the fruit, but instead of putting the lime in bath water, they decide to crush the limes directly on their body and shoulders before bathing.

Clinically he did not have any systemic symptoms such as fever, ache or joint pain. He had not used any perfumes and was quite sure that he had not been attacked by jelly fish. There were rashes over the shoulders, deltoids, lower chest wall anteriorly, anterior abdomen and a characteristic trickle-shaped streak rash over the lateral parts of the trunk (the left trunk is shown in Fig 1). A few of his friends in the group had somewhat similar rashes. Truncal rashes were linear, well demarcated and erythematous with no vesicles or crusting. Abdominal rashes were erythematous, and the margins were irregular and appeared as bizarre patches (Fig 2). A few early vesicles were also seen over the abdomen. It was papular and tender in those areas. He described the lesions as slightly burning and non-pruritic in nature.

Figure 1.

Figure 2.

Question

1. What is the most likely diagnosis based on the history and physical findings?
2. What is the cause of the skin condition?
3. Which treatment should be offered to the patient?

Answer

1. Phytophotodermatitis
2. Skin rashes resulted from a reaction between a photosensitising botanical agent present in lime juice on the skin and sunlight. The lime juice incidentally dripped down the sides of the trunk, resulting in the trickle-shaped rashes on the sides of the body.
3. Cool compresses, topical steroids and nonsteroidal anti-inflammatory drugs (NSAIDs) should be offered to the patient for the treatment of rashes. An explanation of the condition and reassurance should also be provided to prevent future episodes.

Discussion

Phytophotodermatitis is common in tropical climates. This patient illustrates the importance of a careful history and the ability to recognise the pattern of skin rashes in the diagnostic work-up of the condition. A high index of suspicion is required for this condition when the clinical picture is elusive.[1]

Phytophotodermatitis is an inflammatory condition of the skin, resulting from a reaction between a photosensitising chemical agent of a plant or fruit origin and sunlight.[2]

Phytophotodermatitis is thus frequently described to occur in individuals exposed to both plants and sunlight such as vacationers, children, agricultural workers, florists and gardeners.[3] Such exposures due to occupational and recreational pursuits are largely unintentional. On the other hand, plant or plant extracts are sometimes used intentionally on the skin for their perceived medicinal values and may occasionally result in adverse effects such as phytophotodermatitis.[4,10] The case described here is unique, as the condition resulted from the use of a plant extract on the skin for a superstitious belief. In fact there is a local Malaysian practice called the "Mandi bunga" (a Floral Bath to attract good luck) which has a mixture that contains the Kaffir Lime(citrus hystrix), a fruit that is known to cause phytophotodermatitis.[5,6]

The common photosensitising agents include lime, lemon, celery, fig, parsley, parsnip and carrot greens. The active substance in lime is a furocoumarin substance called psoralens. The phototoxic reaction between psoralens and long-wave ultraviolet light is independent of the immune system and begins a day after exposure and peaks at 2-3 days. Thus, this condition can affect any individual. This case explained the delayed appearance of rashes and the occurrence of the same condition in other members of the group.

The diagnosis of phytophotodermatitis is clinical, with a clear history being essential to the diagnosis. Laboratory investigations, if needed, are used only to support the diagnosis.

Symptoms include pain, smarting and sensation of sunburns. Pruritus is not a major manifestation of the disease. Lesions are usually erythematous but may be vesicobullous. The hallmarks of the disease are bizarre inflammatory streaks and irregular patches. The healing phase may be followed by post-inflammatory hyperpigmented streaks or macules, which are also pathognomonic of the disease.[7] When the fruit is squeezed, the liquid may spill over and flow down the body, producing the characteristic trickle-shaped streaks of erythema found in this case.

In this case, phytophotodermatitis may need to be differentiated from allergic phytodermatitis, irritant contact dermatitis and chemical burns. Phytophotodermatitis comes under the family of plant dermatitis. A close relative is another plant dermatitis known as allergic phytodermatitis, an allergic contact dermatitis. The common clinical

entities causing allergic phytodermatitis in North America are poison ivy, poison oak or poison sumac. These belong to the Anacardaceae family. The Asian counterparts of the Anacardaceae family are the mango tree, the lacquer tree and hardwood. Allergic phytodermatitis also occurs due to a reaction to a plant substance, namely uroshiol (an oleoresin) present in the above-mentioned trees. Linear lesions may occur due to the exposed skin brushing against the plant. Unlike phytophotodermatitis, allergic phytodermatitis occurs due to an immunologic reaction only in susceptible individuals and requires a previous exposure to the sensitising chemical. Rashes are typically eczematous, may manifest fully as fireworks of crisscrossing streaks, erythematous papules, urticarial lesions, oedema, vesicles and bullae, and the eruption may be extraordinarily pruritic.[8]

The management of phytophotodermatitis includes an adequate explanation and reassurance to prevent anxiety and recurrence. Cool compresses, NSAIDs, topical emollients and topical steroids may be indicated in the acute phase.[9]

Although the condition is usually self-limiting, it may be complicated by a state of persistent post-inflammatory hyperpigmentation, which may last for weeks to months.[10]

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