

Reading Between the Lines

Sometimes lesions arrange themselves in a linear fashion—which narrows down the differential. Can you identify these orderly cutaneous manifestations?

Match the diagnosis to the photo by letter

- a. Phytophotodermatitis b. Flagellate dermatitis c. Lichen striatus d. Cutaneous larva migrans



1. A 30-year-old man with HIV infection presents with a pruritic, erythematous eruption of multiple linear streaks on his trunk and extremities that erupted several hours ago. There is no dermographism; mucosal surfaces are normal. The patient reports that 4 days ago, he ate a meal that included large quantities of lightly cooked shiitake mushrooms. The patient is referred to rule out secondary syphilis.



2. An otherwise healthy 13-year-old girl presents with an asymptomatic linear rash on her left arm. The rash spontaneously appeared 3 months ago with several small red bumps on the upper part of the left ventral arm. Since then, erythematous papules have increased in number and extended in a linear distribution to the wrist. She denies exacerbating factors, including changes in temperature or exposure to certain soaps and detergents, and states that no one in her family has a similar type of rash.

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3. A healthy 42-year-old man presents with pruritic lesions on the leg of several weeks' duration. He describes a crawling sensation under the skin and states the lesions are slowly moving. On physical examination, erythematous, winding, linear tracts are present on his left thigh.



4. A 22-year-old woman presents 6 days after sunning on the beaches of Mexico, Belize, and Guatemala. She reports a painful, streaky, hyperpigmented rash on the lateral surface of her right thigh extending in a linear fashion, with an associated area of blistering and erythema. A similar rash has also developed on the dorsal aspect of both hands. She noticed the rash shortly after she washed her clothes with freshly squeezed lime juice, as per native custom.

ANSWERS



Diagnosis: Based on the clinical findings, the patient was diagnosed with **flagellate shiitake mushroom dermatitis**.

(Subsequent treponemal and nontreponemal tests were negative for syphilis.) Shiitake dermatitis is a rare disease that appears in susceptible patients after the consumption of large amounts of raw or undercooked shiitake mushrooms. The eruption is believed to be attributable to either a toxic or hypersensitivity reaction to lentinan, a polysaccharide component found within the mushroom cell wall. Shiitake dermatitis is self-limiting and treatment focuses on symptomatic management.

Originally published in *The Journal of Family Practice* (2018;67[8]). For more information, see <https://bit.ly/2CCiNus>



Diagnosis: Lichen striatus (LS) is a rare asymptomatic dermatitis of childhood that presents in a classic linear distribution. LS typically appears in children and

adolescents ages 5 to 15 years and has a predilection for the extremities. Most cases occur in the spring and summer. Lesions are commonly described as multiple small, white to flesh-colored, flat-topped papules distributed in a unilateral linear band. The classic linear distribution can be continuous or interrupted and can progress down the extremity following Blaschko lines. The linear band may develop a curved appearance as it follows Blaschko lines.

Originally published in *Cutis* (2009;83[3]:118-126). For more information, see <https://bit.ly/2RQIWk0>



Diagnosis: Cutaneous larva migrans (CLM) presents as a self-limited cutaneous eruption. It is also known as *creeping eruption*. Animal (dog and cat) hookworms

such as *Ancylostoma braziliense* are responsible for most CLM infestations in the

central and southeastern United States. The hookworms are often acquired while walking barefoot in contaminated sand. Carpenters, plumbers, and gardeners are also likely to be affected. Ova from the hookworms hatch into larvae that penetrate into skin.

Originally published in *Dermatology News* (November 14, 2016). For more information, see <https://bit.ly/2G0C9gt>



Diagnosis: After a careful history and direct questioning regarding possible psoralen exposure, the diagnosis of **phytophotodermatitis** was

made. Phytophotodermatitis is a generalized term used to describe a nonimmunologic skin eruption caused by a reaction between psoralen and subsequent exposure to long-wave UV light. The psoralen from the lime juice on this patient's skin caused a chemical reaction when exposed to the sun.

Psoralen is found in many plants, including lemons, limes, parsley, celery, carrots, and figs. When exposed to light, psoralen electrons absorb energy and are excited to 3 times their ground state. When the electron returns to the ground state, energy is released in the form of heat, fluorescence, and/or phosphorescence. This reaction damages cell DNA by causing cross-linking between the furocoumarin ring and the pyrimidine bases, resulting in signals for apoptosis and inhibition of cell growth or survival in the epidermis. The hyperpigmentation that follows the blistering and eventual desquamation of the epidermis is due to the melanocytes that fall from the epidermis to the dermis.

A photoprotection mechanism also occurs in which more melanocytes are distributed in the epidermis. In fact, psoralen plus UV light is used to treat conditions such as psoriasis and T-cell lymphomas. This treatment inhibits keratinocyte growth and hyperproliferating lymphocytes.

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Originally published in *Cutis* (2010;85[6]:282-292). For more information, see <https://bit.ly/2S4agKB>