

A Case of Flagellate Dermatitis After Ingestion of Shiitake Mushrooms



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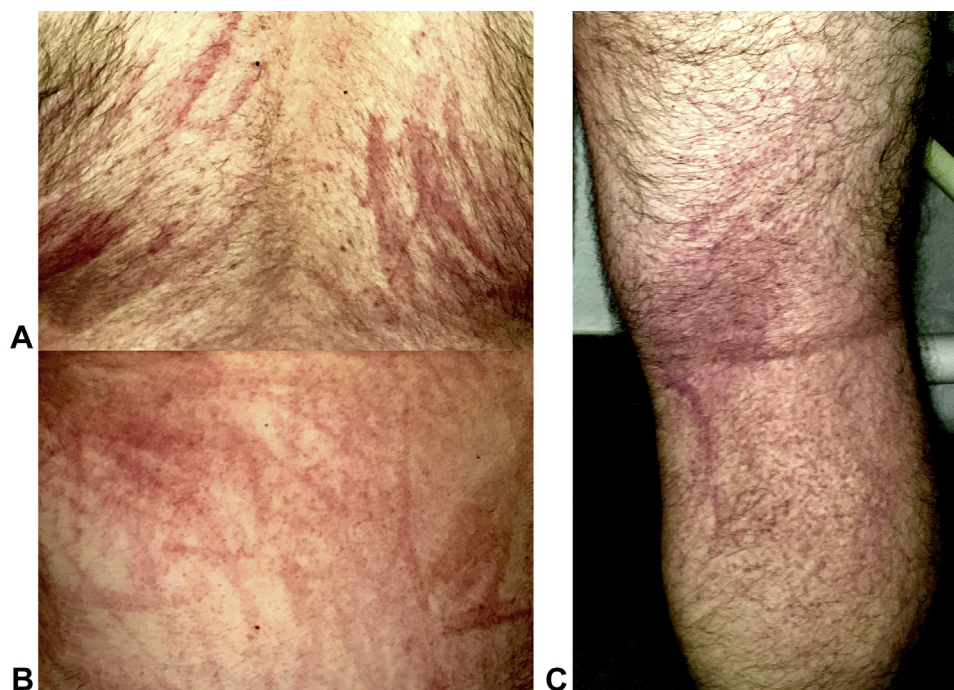


FIGURE 1. Infiltrated linear erythematous lesions in the trunk, limbs, and neck (**A** and **B**), with areas of confluent micropapular erythema in the arms and leg folds (**C**). Photographs taken at day 3 and after treatment with intravenous antihistamine and corticosteroid at the emergency department.

A 26-year-old man was observed in our emergency department because of generalized, pruritic lesions (**Figure 1**) without other signs or symptoms. He was medicated with hydrocortisone 100 mg and clemastine 2 mg with partial improvement and discharged with hydroxyzine 25 mg thrice a day and prednisolone 0.5 mg/kg (60 mg/d) for 5 days.

Because of persistence of lesions and intense pruritus, he returned 3 days later and was examined by an allergist. His medical history was unremarkable. He was not under any medication. He denied introduction of new foods but further investigation disclosed ingestion of grilled shiitake mushrooms 28 hours before onset, although he previously tolerated boiled ones.

Given the characteristic configuration of the lesions and the previous ingestion of possibly undercooked shiitake mushrooms, a likely diagnosis of flagellate dermatitis was made. Avoidance of raw or undercooked shiitake mushrooms, oral bilastine 20 mg 4 times a day, and topical methylprednisolone aceponate twice a day until symptom resolution were recommended.

Comments: Shiitake mushrooms (*Lentinus edodes*) are widely used in Asia because of their particular umami flavor and in traditional medicine for their antihypertensive, lipid-lowering, and anticarcinogenic properties and as adjuvants of gastric and intestinal adenocarcinoma.^{1,2}

Flagellate dermatitis is characterized by intensely pruritic, isolated or grouped papules or papulovesicles with whiplash-striped, infiltrated erythema that arise in a Köbner

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phenomenon pattern because of stripe-like scratching,^{1,2} thus differing from the immediate onset of dermographism. The lesions arise typically in the trunk and, in decreasing order, extremities, neck, face, and head, 12 hours to 5 days after ingestion of raw or undercooked shiitake mushrooms.^{1,2} Involvement of mucous membrane or other organs has not been reported.

It was first described in 1977 by Nakamura¹ who analyzed records of 51 patients with flagellate dermatitis. Further cases were reported in Europe²⁻⁵ and South⁶ and North America.⁷

The pathologic mechanism may be related to toxicity to lentinan, a thermolabile polysaccharide that induces the production of IL-1 and causes vasodilation and rash.^{2,4,6} However, only 9 of 519 patients who were treated with intravenous lentinan showed cutaneous side effects,^{2,6} hinting at possible cofactor interaction, including exposure to sunlight and medications such as angiotensin-converting enzyme inhibitors or diuretics.^{4,5}

No specific laboratory or biopsy findings have been found. Some authors have demonstrated positive skin prick test results, specific IgE, and/or patch testing in cases of immunologically mediated reactions to shiitake spores in an occupational setting, manifesting as contact urticaria or dermatitis, asthma, and hypersensitivity pneumonitis.²

Differential diagnosis includes bleomycin-induced flagellate dermatitis (these lesions usually involve mucous membranes and heal with hyperpigmentation), rare presentations of adult-onset Still disease, and dermatomyositis.^{2,4,6}

It is self-limited, lasting from 2 days to 6 weeks with an average duration of 8.5 days.¹ Treatment is symptomatic with oral nonsedating antihistamines, topical corticosteroids, and, in

severe cases, a short course of oral corticosteroids. Limited sun exposure is recommended.²

With the increasing popularity and availability of shiitake mushrooms and shiitake extract—containing dietary supplements worldwide, an increase in flagellate dermatitis is expected. Therefore, allergists should be aware of this to avoid unnecessary diagnostic procedures and treatments. Patients should also be reassured about its favorable prognosis.

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