Shiitake Mushroom-Induced Flagellate Dermatitis

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CASE PRESENTATION

HISTORY OF PRESENT ILLNESS: A 73-year-old male presents with a 3-day history of pruritic rash on his neck, chest, back and bilateral lower extremities. Scratching the patient's back did not produce signs of dermatographism, and he denied scratching the areas of involvement. Upon further history, the patient confirmed the ingestion of pizza with shiitake mushrooms at a Japanese restaurant three days prior to the eruption.

MEDICAL/SURGICAL HISTORY: Hypercholesterolemia, non-melanoma skin cancer, sleep apnea, arthritis, rotator cuff surgery, carpal tunnel release, cataract surgery, hernia repair, tonsillectomy, hemorrhoidectomy

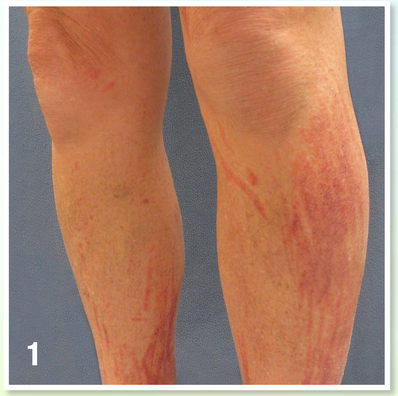
MEDICATIONS: Bimatoprost eye drops, simvastatin, calcium, fish oil, multivitamin, glucosamine chondroitin, lutein, CoQ-10, triamcinolone acetonide 0.1% ointment

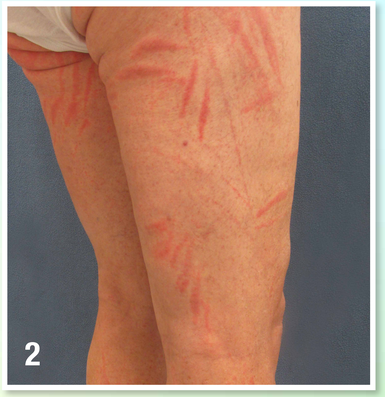
PREVIOUS TREATMENT: Prednisone 20mg x 5 days, triamcinolone 0.1% cream

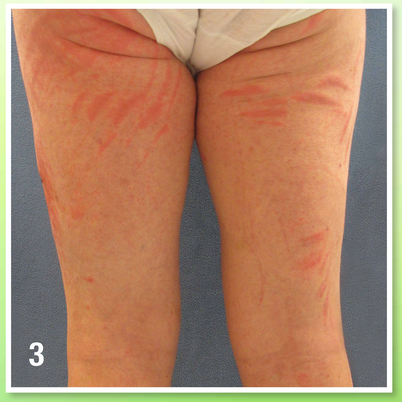
CURRENT TREATMENT: Triamcinolone acetonide 0.1% ointment, oral prednisone taper

PHYSICAL EXAMINATION: Linear, edematous, pink plaques in a flagellate pattern on the posterior neck, chest, back and bilateral lower extremities.

BIOPSY: Advanced Dermatology Associates, LTD (AD17-13416, 11/27/2017) Left thigh: "Mild spongiosis, smudging of the dermoepidermal junction associated with a hint of vacuolar alteration, and a superficial perivascular and interstitial infiltrate of lymphocytes with conspicuous eosinophils and a few neutrophils (that are both intact and degenerating). Eosinophils are also sometimes clustered and degranulated. Extravasated erythrocytes are present at the level of the superficial plexus; however, there is no compelling evidence for fibrin within vessel walls. PAS negative."







Figures 1, 2, and 3: Linear, edematous, pink plaques in a flagellate pattern on the bilateral lower extremities.

DISCUSSION

Shiitake mushroom-induced flagellate dermatitis, also known as flagellate erythema or toxicoderma, was first described in Japan by Nakamura in 1977. It is correlated with the ingestion of raw or undercooked shiitake mushrooms and can occur 12 hours to several days after ingestion. The clinical presentation is characterized by a linear, erythematous eruption resembling whiplash marks.

The pathogenesis of shiitake flagellate dermatitis remains unclear, but is thought to be a direct toxic reaction to lentinan, a thermolabile polysaccharide that is extracted from the shiitake mycelia. Lentinan is an inflammatory cytokine that increases the secretion of interleukin-1, leading to vasodilation. Shiitake flagellate dermatitis does not occur with fully cooked shiitake mushrooms, as they contain the denatured form of lentinan.

The differential diagnosis of flagellate eruptions includes bleomycin-induced flagellate dermatitis and dermatomyositis. However, the clinical picture varies in that these entities typically also have mucous membrane involvement. In addition, lesions resulting from bleomycin heal with hyperpigmentation.

The condition is self-limited, with complete resolution of symptoms usually after two weeks. Due to its benign course, only symptomatic treatment is required. Both antihistamines and topical corticosteroids have been reported to provide relief, and in severe cases, short courses of oral corticosteroids. Recurrence may occur with re-exposure, therefore eating raw or undercooked shiitake mushrooms should be avoided.

Susceptibility to shiitake flagellate dermatitis is variable, with an estimated prevalence of about 2%. However, this may increase as shiitake mushrooms are commonly used in Asian cuisine which is becoming increasingly popular in the United States.

REFERENCES

1. Nakamura T. Toxicoderma caused by shiitake (Lentinus edodes). *Jpn J Clin Dermatol.* 1977;31:65-68.
2. Poppe LM et al. Flagellate dermatitis caused by shiitake mushrooms. *An Bras Dermatol.* 2012;87:463-465.
3. Fang S, Bajoghli A, Bajoghli M. Shiitake mushroom-induced flagellate dermatitis. *Ann Allergy Asthma Immunol.* 2017;119(5):462-463.
4. Chu EY, Anand D, Dawn A, Elenitsas R, Adler DJ. Shiitake dermatitis: a report of 3 cases and review of the literature. Cutis. 2013;91:287–290.