Shiitake flagellate dermatitis: a case series from Italy

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To the Editor,

Shiitake flagellate dermatitis (SFD) is an acute eruption that appears some hours or days after ingestion of raw or undercooked mushrooms of the species *Lentinula edodes* (Berk.) Pegler, 1976, popularly known as "shiitake". SFD was first reported in 1977 in Japan (1). The first European cases were described in 1991(2). European cases of SFD increased in the last years because shiitake is cultivated in some European countries and it is easily available in supermarkets and restaurants. The diagnosis is based on the typical clinical presentation, as laboratory exams, histopathological picture and allergological tests are nonspecific or controversial. We present six Italian patients with SFD, with allergological and histopathological studies in four of them.

The case list consists of six Caucasian patients (4 males and 2 females, with an age ranging from 40 to 80 years). All patients were admitted to hospital because of the acute appearance of linear, erythematous, urticated streaks, similar to skin lesions caused by whiplashes, located on the trunk (all patients) and limbs (one patient) (figure 1A, 1B, 1C, 1D), accompanied by more or less severe pruritus. According to medical history, all patients had eaten shiitake mushrooms from 1 to 3 days before the appearance of the rash.

Laboratory examinations were within normal ranges in all patients. Patch tests with dried and cooked (at 100°C for 15 minutes) *Lentinula edodes* were carried out in three patients: they were negative at 48 hours and positive at 72 hours. Five healthy volunteers were negative. Prick-by-prick tests were not performed.

In two patients, histopathological examination showed acanthosis, spongiosis, papillary edema, dilated capillaries and superficial, perivascular lymphocytic infiltrate with sparse eosinophils (figure 2).

Complete remission was observed in all patients within 3-5 days with oral antihistamines; in one patient a topical corticosteroid was added.

SFD is characterized clinically by linear, erythematous, urticated streaks, similar to skin lesions caused by whiplashes, usually located on the trunk, and accompanied by more or less severe pruritus. The rash usually lasts from 2 days to 2 weeks. Some rare cases of pustular (3,4) or purpuric (5) lesions and oral ulcers (4) have also been reported.

The pathogenesis of the flagellate eruption is still unclear. Some authors consider SFD a toxic reaction to lentinan, a heat-sensitive β-1,3 b-glucan that is present in the cell wall of shiitake, leading to overexpression of interleukin-1 (5). This hypothesis is supported by frequent negative allergological exams and positive results in healthy controls (5). Patch and prick-by-prick tests have been rarely carried out and with conflicting results (5). Patch tests with raw *Lentinula edodes* were negative in some patients and positive in others (5): a type IV hypersensitive reaction to lentinan has been hypothesized (5). As previously mentioned, in three of our patients patch tests with *Lentinula edodes* were positive with dried and cooked (at 100°C for 15 minutes) mushroom at 72 hours, and negative at 48 hours. In some patients, prick-by-prick tests showed delayed vesicular reaction (5). In spite of a careful review of the literature, the exact number of patients with positive and negative patch tests, as well as prick and prick-by-prick tests, is impossible because several different methods were used. For instance, shiitake was patch tested as fresh, dried and cooked mushroom: the latter at a temperature ranging from 50 to 100°C, for 5 to 15 minutes. Some cases of occupational allergic contact dermatitis in shiitake growers were published (6). Photosensitivity was also described (7).

As far as histopathology of SFD is concerned, approximately 10 patients have been published. Although some degrees of variability in microscopical features are present, most of the cases shows a spongiotic pattern with a perivascular lymphocytic infiltrate with eosinophils, as it has been observed in our patient (8). Therefore, histopathology alone is not specific to make a correct diagnosis: the latter should be based upon a good clinico-pathological correlation. Differential diagnosis includes flagellate dermatitis of dermatomyositis, exposure to bleomycin and Still's disease of adult. SFD is self-healing, resolving within days to weeks without treatment. Oral antihistamines and topical and/or oral corticosteroids can be of help in reducing pruritus. Prevention is based on cooking shiitake mushrooms at a temperature of at least 130°C (5).

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LEGENDS

Figure 1 - (A) *Patient 1: a 40-year-old man;* ***(B)*** *Patient 2: a 46-year-old man;* ***(C)*** *Patient 3: a 58-year-old woman;* ***(D)****Patient 4: a 40-year-old man.*

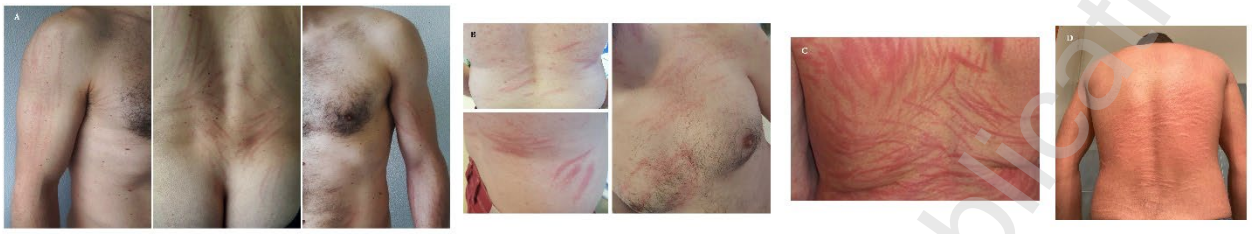

Figure 2 - *Histopathological picture. a) Acanthosis, spongiosis, papillary edema, dilated capillaries and superficial, perivascular lymphocytic infiltrate with sparse eosinophils (H & E, x10). b) High magnification of spongiotic dermatitis with eosinophils (H & E, x40).*