

Pigmented contact dermatitis due to kojic acid. A paradoxical side effect of a skin lightener

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Kojic acid (5-hydroxy-2-(hydroxymethyl)-4-pyrone; CAS 501-30-4) has been increasingly used as a skin-lightening agent in cosmetic products. Despite it being considered to have high sensitizing potential (1), few cases of contact allergy have been reported in the literature (2, 3). We report a case of pigmented contact dermatitis to kojic acid. The clinical diagnosis and the histopathology of the lesions are briefly discussed.

Case Report

A 54-year-old woman, with actinic lentigines on her arms and forearms, admitted to having used Kojicol Plus® (SeSDERMA, Spain; hydroquinone 2%, lactic acid 4%, Hamamelis Virginiana 74%, castor oil 5%, citric acid 1%, cellulose 1%, propylene glycol 10%, and kojic acid 3%) for 5 years to lighten the lesions. A year before presentation, she noticed progressive, asymptomatic erythematous and hyperpigmented areas on her arms (Fig. 1) but continued applying the skin lightener.

Biopsy showed pigmentary incontinence, melanophagia, and a moderate lymphohistiocytic infiltrate without a spongiotic epidermis. Patch tests with the Grupo Español de Dermatitis y Alergia de Contacto (GEIDAC) baseline series, disperse dyes, and photopatch tests (Grupo Español de Fotobiología) were negative (TRUE Test®, Chemotechnique®, Finn Chambers®, 2 days occlusion). Patch testing with kojic acid 1% aqua and the Kojicol Plus® 'as is' were negative on D2; however, on D4 and on D7, hyperpigmented areas were present at the two sites. These lesions persisted at least a month (Fig. 2). Twenty controls tested with kojic acid 1% aqua and Kojicol Plus® were negative.

Discussion

In contact dermatitis, hyperpigmentation as a result of pigmentary incontinence often occurs without any clinical dermatitis or pruritus (4). This lack of symptoms can make the clinical diagnosis difficult. The skin colour and the nature of the allergen can modify the clinical picture. The colour of the lesions may vary from reddish-brown to slate-coloured to dark brown (5). A detailed history is essential to assess the role of a possible sensitizer.

Kojic acid, a fungal metabolic product, has been increasingly used as a skin-lightening agent in skincare products (1). It inhibits the production of free tyrosinase, which blocks the formation of melanin (6).

To our knowledge, a clinical presentation of pigmented contact dermatitis from kojic acid has not been previously reported. Any erythema can be correlated with histopathological inflammation; light coloured skin may make this more obvious until pigmentary incontinence leads to hyperpigmentation.

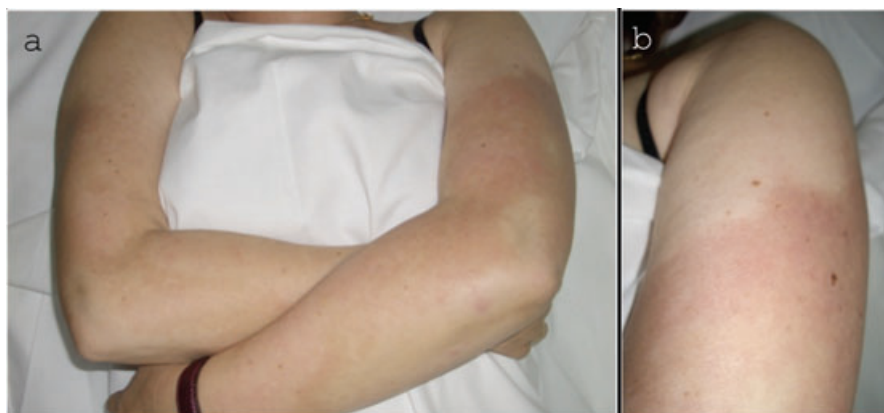


Fig. 1. (a) Hyperpigmented and erythematous well defined asymptomatic areas. (b) The defined border suggested a contact dermatitis.

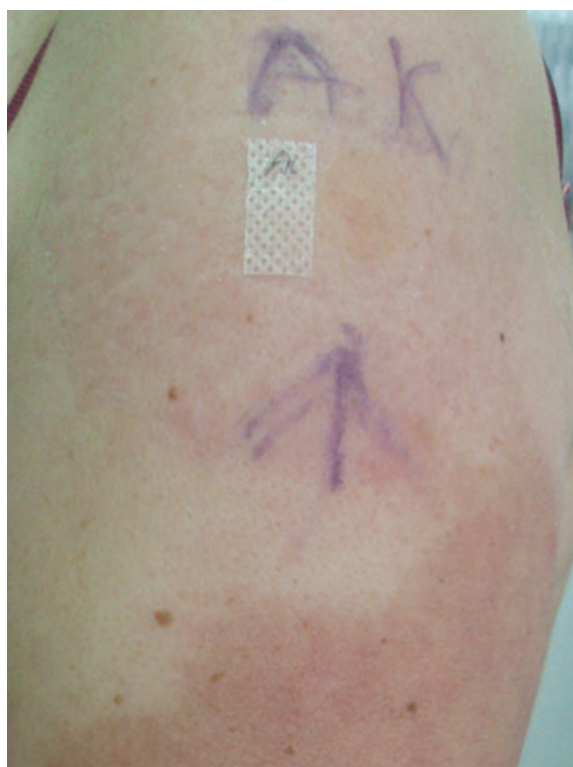


Fig. 2. Patch test Kojic acid 1% aqua: hyperpigmentation after 1 month with no previous erythema.

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