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Contact Allergic Dermatitis to Quinine in an Anti-hair Loss Lotion

Dermatitis alérgica de contacto a quinina por una loción capilar anticaída

To the Editor:

The use of anti-hair loss lotions for treating androgenic alopecia can occasionally cause pruritus and desquamation of the scalp. The most common causes include irritant contact dermatitis, allergic contact dermatitis, and even exacerbation of seborrheic dermatitis. Allergic contact dermatitis caused by anti-hair loss lotions has been widely described in the literature and is generally associated with the use of minoxidil or propylene glycol used as excipients, the latter being the causative allergen in most cases.[1] Allergic contact dermatitis to the quinine contained in anti-hair loss lotion, as in the present case, is much less common.

The patient was a 73-year-old woman with no relevant personal history, referred by her health-area dermatologist for a highly pruritic and impetiginous papulovesicular dermatitis of the scalp, ears, and face that had begun several days earlier (Figure 1). The patient reported the topical application of Bio-anagenol shampoo, Lacovin (2% minoxidil), and Kavel anti-hair loss lotion over a period of 13 years for androgenic alopecia. She denied having used other topical, cosmetic, or therapeutic products, did not associate her symptoms with any occupational activity, and had no history of atopy or other skin diseases. Treatment was prescribed with corticosteroid solution (clobetasol propionate twice a day), prednisone (30 mg/d), antihistamines, and oral antibiotics for a week, leading to complete resolution of the symptoms. An open test subsequently performed on the patient's forearm with Lacovin (2% minoxidil) was negative, while Kavel anti-hair loss lotion was positive (++) on the third day. A patch test with Kavel anti-hair loss lotion applied to the back was positive (++). The other patch tests with a standard series from the Spanish Contact Dermatitis

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Figure 1 Erythematous plaque with desquamation and honey-colored crusts on the scalp.

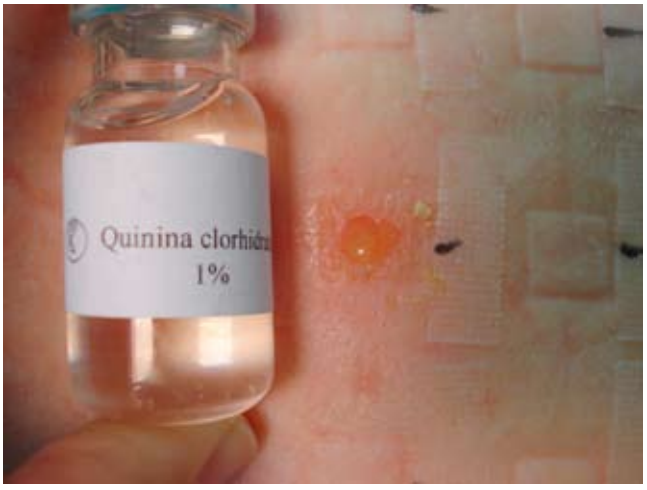

Figure 2 Patch test (++++) for 1% quinine hydrochloride at 48 h.

Table Active Ingredients Tested

Butylene glycol, 1% aq	(−)
Cegaba liquid, 1% aq	(−)
Dekaben-Phenonip, pure aq	(−)
DL Panthenol, 1% aq	(−)
Disodium edetate, 1% aq	(−)
Denatured ethanol, 1% aq	(−)
Hydrolite 5, 1% aq	(−)
Quinine hydrochloride, 1% aq	(+ + + +)
Sephora root powder, 1% aq	(−)
Taurine, 1% aq	(−)
Transcutol CG 1% aq	(−)
Zinc gluconate, 1% aq	(−)

Abbreviation: aq, aqueous solution.

and Skin Allergy Research Group (GEIDAC), 2% minoxidil and 5% propylene glycol, both in petroleum jelly, were negative at 48 and 96 hours. The manufacturer was contacted and provided the individual components of Kavel anti-hair loss lotion, with which further patch tests were performed (Table). Patches were placed on the back, removed after 48 hours, and read following the recommendations of the International Contact Dermatitis Research Group (ICDRG). Positivity (++++) for quinine hydrochloride, 1% aqueous solution, was observed at 48 and 96 hours (Figure 2). This allergen was negative in 20 controls. The patient remained asymptomatic after avoiding contact with Kavel lotion.

Quinine is an alkaloid obtained from the bark of several species of cinchona tree[2] and was already part of the first patch-test standard series proposed by Poul Bonnevie in the early 20th century. It was later withdrawn due to scant usage and low frequency as an allergen.[3] Quinine was used therapeutically for a variety of conditions, such as myotonia, nocturnal cramps, and some cases of chloroquine-resistant falciparum malaria.[2]

Allergic contact dermatitis to the quinine contained in anti-hair loss lotions has been previously reported in the literature, despite being infrequent and occasionally difficult to demonstrate.[4] This is the first documented case at the Skin Allergy Unit of the Dermatology Department at Hospital General Universitario de Valencia (Spain) with experience in over 10 000 patients who have undergone patch testing. In addition to sensitization after using anti-hair loss lotions containing quinine, there have been reports of other forms of contact sensitization to this allergen either after applying chemical contraception containing quinine as a spermicide or after the handling of this substance by employees of the pharmaceutical industry.[2] Quinine may cause sensitization after exposure for 2 or 3 months, or even after many years of use as is the case here.[5] Photoallergic reactions can also occur.[6] The possibility of such reactions in this patient was not ruled out due to the intensely positive results of the patch tests and because systemic reactions have been observed in previously sensitized individuals after the consumption of small amounts of quinine, such as the content of a tonic water. There is even an anecdotal case of toxic epidermal necrolysis after drinking a gin and tonic.[2,7]

In conclusion, the case reported here indicates that quinine must be borne in mind as an “old allergen” in patients with eczema of the scalp using anti-hair loss products for cosmetic reasons. The collaboration of the pharmaceutical industry is crucial in these cases in order to establish a definitive etiological diagnosis.

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