

Allergic contact dermatitis to *Aloe vera*

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Abstract

We present the case of a 72-year-old woman observed for dermatitis on the legs followed by appearance of erythema on the eyelids. She had a past history of peripheral venous insufficiency and had been using self home-made *Aloe vera* juice over the legs for relief from pain. Patch tests showed positive reactions to the leaf of *Aloe*, the macerated *Aloe* jelly, and nickel sulfate. Although most manufacturers process *Aloe* products avoiding its irritant extracts, and probably as a consequence reports of allergic reactions are rare, one must remember that the growing popularity on the use of *Aloe* products may stimulate its use 'as is' by the patients. Furthermore, it is important to specifically ask patients about the use of these products, because they consider it as innocuous and thus would not spontaneously provide such information.

Keywords: allergic contact dermatitis; *Aloe vera*; medicinal plants; sensitization

Aloe barbadensis (Miller), commonly referred as *Aloe vera* ('aloe' derived from the Arabic word 'alloeh' meaning 'bitter and shiny substance', and 'vera' from the Latin word for 'truth'), native to the North African and the Arabian peninsula is the most potent of the approximately 420 *Aloe* species and one of the most widely used herbal products throughout the world. It contains pharmacologically active ingredients advocated for the healing of several diseases. Despite its widespread use, reports of allergic reactions are rare.

Case report

A 72-year-old woman was observed for a 3-month history of pruriginous erythema of the legs, followed by intense itching, erythema, and desquamation of the eyelids ([Figs 1 and 2](#)). Shortly before, she had started applying self home-made *Aloe vera* leaf juice over the legs for the treatment of chronic peripheral venous insufficiency. There was no history of atopy or other relevant medical condition.

Figure 1: Mild unilateral swollen right leg. Mottled hyperpigmentation over the legs, erythema, and desquamation predominantly affecting the lower third.

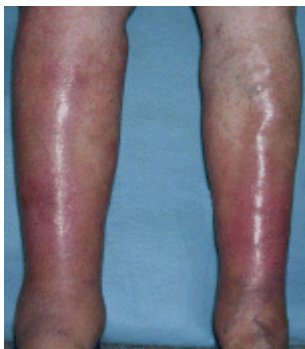


Figure 2.:Chronic dermatitis of the eyelids.



She was patch tested with the Portuguese Contact Dermatitis Group standard series (Chemotechnique, Malmö, Sweden), Aloe jelly ‘as is’ (liquid extract from the macerated plant) and Aloe pulvis (the whole macerated leave) ‘as is’, which were mounted on Finn Chambers (Scanpor Alpha AS, Norgesplaster Facility, Kristiansand, Norway) and fixed on the upper back with Mefix (Molnlycke Health Care, Göteborg, Sweden). Her own hygiene personal products (bath gel and shampoo) were tested ‘as is’ semi-open: a minute amount of the products were directly applied with a Q-tip on the skin, left to dry completely and covered with Micropore® tape. The patch tests were removed after 2 days and test readings were recorded 1 day later, according to the International Contact Dermatitis Research Group terminology [\(1\)](#). Patch test results showed positive reactions to Aloe jelly (++) and Aloe pulvis (++) ‘as is’ and to nickel sulfate (+) on day 3, as summarized in [Table 1](#). The Aloe extracts were applied in the same way on 20 volunteers; none of them experienced an irritant or allergic reaction.

Table 1. Results of the patch tests on day 3

	Day 3
Aloe jelly as is	++
Aloe pulvis as is	++
Nickel sulfate (5% pet.)	+

The application of *Aloe* was strongly dissuaded and topical corticosteroids were prescribed (hydrocortisone 1% cream for the eyelids and methylprednisolone aceponate 0.1% ointment for the legs). The lesions gradually improved with total resolution in 2 weeks, without recurrence in an 8-month follow-up period.

Discussion

Aloe vera, used for several centuries, is a well-known medicinal plant belonging to the family *Liliaceae*. Through human trade and migration, this plant came to be known and was widely used to cure burns and wounds throughout ancient civilizations. Several supposed properties, such as potent anti-inflammatory, antimicrobial and even anti-tumoral effects apply to its growing popularity, and nowadays it is advocated for the healing of injuries, psoriasis, radiation dermatitis, and several other diseases. Besides this, *Aloe* is believed to balance the pH of the skin and is therefore used in hundreds of medicines and over-the-counter products such as shampoos, soaps, shaving creams, deodorants, sunscreens, and moisturizers (2, 3). However, randomized double-blind case–control studies to quantify any benefits of *Aloe* as a primary active ingredient are warranted.

Allergic contact dermatitis due to other *Liliaceae*, such as *Allium* and *Tulipa* are well known, but reactions resulting from the application or intake of *Aloe vera* are extremely rare, mostly reported more than 15 years ago (4, 5). This might be explained by considering the 2 components of the plant: the bark of the leaves containing anthraquinones with a considerable irritant and allergic potential, and the pulp in the centre of the leaves with high water content and carbohydrates. Nowadays, most manufacturers of *Aloe* products process the *Aloe* gel from the centre of the leaves, avoiding the irritant extracts (6). Given the rarity on recent reports of truly adverse cutaneous reactions and its widespread use, one can suppose that the use of properly processed topical products containing *Aloe vera* is relatively safe.

In the case presented in this study, the sensitizing capacity of the plant ‘as is’ was shown by the induction of an allergic contact dermatitis over the legs and the eyelids, in the later probably due to hand transfer. It also reflects the growing popularity of the ‘so-called’ natural products, conducting to their uncontrolled use and aware to the lack of effective regulation on these products.

Therefore, adverse effects of herbal medicines need to be suspected and investigated, as these are rare but real causes of allergic contact dermatitis.

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