

Allergic contact dermatitis caused by 2-ethylhexyl acrylate in a rivastigmine transdermal therapeutic system

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CASE REPORT

An 84-year-old man was referred to our Contact Eczema Department with multiple circular red lesions on the trunk which developed over the past 3 months. The patient was diagnosed with Alzheimer's disease by the neurology department, who prescribed rivastigmine Aristo

(9.5 mg/24 h) transdermal patches (Pharma Iberia, Torrejón de Ardoz, Madrid, España) as treatment. Three weeks after starting the treatment, the patient developed intense pruritus and eczematous plaques at the site where the patch was applied. The patient did not treat the skin lesions. Physical examination showed multiple circular erythematous-edematous plaques (Figure 1A), some of which with



FIGURE 1 (A) Erythematous-edematous plaques with well-defined edges, simulating the morphology of the transdermal patch. (B) Eczematous plaques with epidermal desquamation. (C) Rivastigmine Aristo transdermal patch

scaling. The composition of the patch was checked and 2-ethylhexyl acrylate was suspected to be the culprit allergen.

Patch tests were performed with the European Baseline Series (Chemotechnique Diagnostics, Vellinge, Sweden), 2-ethylhexyl acrylate 0.1% pet. (meth-acrylate series-printing; Chemotechnique Diagnostics), Disperse Orange 1 and 3 (Textile Colours & Finish Series, Chemotechnique Diagnostics), and rivastigmine 1%, 5%, and 10% pet. (manufactured in our hospital pharmacy). The results were interpreted according to the criteria of the International Contact Dermatitis Research Group. Patch tests were read on day (D) 2 and D4. The patient showed positive patch test reaction only to 2-ethylhexyl acrylate 0.1% pet. Rivastigmine preparations were negative.

The case was discussed with the Department of Neurology to assess the possibility of changing treatment. However, given the good evolution of the patient from the neurological point of view, and the absence of gastrointestinal side effects, the family declined to change treatment. Topical treatment with 0.1% methylprednisolone acetate cream was prescribed to accelerate the resolution of skin lesions in addition to emollients.

DISCUSSION

The use of transdermal patches has been an important progress in the treatment of some diseases. The main drugs administered by this route are nitroglycerin, scopolamine, nicotine, testosterone, estradiol, clonidine, rotigotine, and more recently, rivastigmine. Transdermal patches can cause skin reactions from occlusion and repeated application (sometimes to the same skin area). Although the prevalence of transdermal patch rashes is unknown, this complication can be seen in up to 97% of patients.¹ Most skin reactions are irritant. Several studies have described sensitization to transdermal patches containing clonidine,² testosterone and estrogen,³ nitroglycerin,⁴ rotigotine,⁵ buprenorphine,⁶ among others. Transdermal patches consist of an adhesive, an active pharmaceutical drug, and penetration enhancing agents; sensitization may develop as a result of one of these three classes of agents. Cases of allergic contact eczema have been reported to nonpharmacological components such as ethanol,⁷ hydroxypropyl cellulose,⁸ menthol, or methacrylates.⁹ Musel and Warshaw¹ and Romita et al¹⁰ have published articles regarding skin reactions to transdermal patches, in which they describe both the drugs and the components of the transdermal patch to be responsible for contact dermatitis.

The transdermal rivastigmine Aristo Patch (Pharma Iberia), which was used by our patient, is composed of three layers. The matrix contains 2-ethylhexyl acrylate, a backing sheet (polyethylene, thermoplastic resin, and aluminum-coated polyester), and a release sheet (fluoropolymer-coated polyester and orange printing ink). All possible components need to be studied using patch tests. As has been observed in recent years, acrylates are one of the main allergens in those cases where an adhesive product is involved. Accordingly, 2-ethylhexyl acrylate was responsible for allergic contact eczema in our patient. Greenspoon et al have published recommendations on management of cutaneous adverse events caused by rivastigmine transdermal patches.¹¹

In summary, we present a new case of allergic contact eczema caused by 2-ethylhexyl acrylate as an adhesive compound in the rivastigmine Aristo transdermal patch. It is essential to identify the cause of sensitization to a patch, as if it is not caused by the drug, in this case rivastigmine, the patient may be able to change the route of administration eg to oral and thereby clear the dermatitis.

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CONFLICTS OF INTEREST

None to declare.

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