

# Allergic Contact Dermatitis from Diethyl Sebacate in a Topical Antimycotic Medicament

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## ABSTRACT

Diethyl sebacate is used in topical medicaments in United States and Japan. We described a case of allergic contact dermatitis from diethyl sebacate in a topical antimycotic medicament. Allergic reaction to diethyl sebacate is likely more common because our group has found three of eight sensitized cases. We believe that an investigation regarding the sensitized frequency to diethyl sebacate would conduct to improve the safety of products in United States and Japan.

**Keywords:** Allergic Contact Dermatitis; Patch Test; Allergen; Diethyl Sebacate; Safety Evaluation

## 1. Introduction

Diethyl sebacate facilitates penetration of effective ingredients [1]. It is used in United States and Japan in some topical medicaments such as antimycotic, corticosteroidal, non-steroidal anti-inflammatory ointments, creams and lotions [1]. The substance may provoke allergic contact dermatitis [1-6].

Topical medicaments usually consist of an effective drug, additives and a solvent, all of which may induce allergic reaction. Each ingredient in the same products may cause allergic and photoallergic contact dermatitis [7-11]. Thus, patch testing is essential for deciding the strategy to prevent the recurrence of allergic and photoallergic contact dermatitis in each patient as well as to design the reduction of sufferers in the social society.

## 2. Case Report

A 39-year-old Japanese man visited us with pruritic erythematous macules and vesicles on the dorsa of the left foot and toes, where he had applied a topical antimycotic solution containing liranafate 2%, a cream containing liranafate 2%, a cream containing amorolfine hydrochloride 0.5%, and a cream containing ketoconazole 2% (**Figure 1**). A 2-day closed patch test was done with these topical medicaments. A positive reaction was only observed to the solution containing liranafate 2% at D2(+) and D4(+). A second patch test was done using each of

the solution's ingredients, which were provided by the manufacturer. This second test produced a positive reaction to diethyl sebacate 5% pet. at D2(+) and D4(+) (**Figure 2**). All other ingredients were negative. Diethyl sebacate is not used in the other used topical medicaments or in the cream containing liranafate 2%.

## 3. Discussion

Seven of eight cases including this presentation were sensitized to diethyl sebacate as a result of applying topical antifungal medicaments [2-6]. Three sensitized cases were found by our group [1,3]. The interview forms for topical antifungal medicaments usually report



**Figure 1.** Clinical appearance of pruritic erythematous macules and vesicles on the dorsa of the left foot and toes.

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**Figure 2. Patch testing produced a positive reaction to diethyl sebacate 5% pet. at D4(+).**

that approximately 1% to 2% of users experience allergic contact dermatitis to the product. Allergic reaction to diethyl sebacate is likely more common.

Allergic contact dermatitis from topical medicaments has been reported in cases caused by 1) effective drugs such as clotrimazole [12] and luliconazole [13]; 2) additives including parabens [14], 1,3-butylene glycol [15], enoxolone [16], diisopropanolamine [9,10], and menthol [7]; and 3) solvents like lanoline alcohol [17]. The trend of the sensitized frequencies has been studied in the well known allergens such as parabens [18,19] and lanolin alcohol [19,20]. However, little is known in diethyl sebacate.

Our current case indicates the need to investigate the sensitization frequency to diethyl sebacate in United States and Japan for safety for patients.

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