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Acute periungueal dermatitis induced by application of urea-containing cream under occlusion

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Abstract

Background: Urea containing topical products are extensively marked for treatment of nail diseases. Side effects are rare and mainly include irritation of the periungual skin, when topicals with high urea concentration are applied too widely on the digit, or covered by tape.

Main observation: We report a case of a 84-year-old man with an erosive-bullous eruption of the 1st and the 2nd left toes due to application of an urea-containing cream, that he had regularly applied every night covering the digit with a plastic bandage. Suspecting an allergic contact dermatitis, we performed patch test with the Italian Standard series called SIDAPA and the product (Xérial 50 Extrême cream®) itself. Patch test readings showed a positive reaction to colophony contained in the plastic band and to the cream.

Conclusion: Our case is the first report of allergic contact dermatitis to a cream containing a high concentration urea utilized for treatment of nail thickening under occlusion. (*J Dermatol Case Rep*. 2012; 6(1): 18-20)

Key words:

adverse event, allergy, colophony, elderly, nail, urea

Introduction

For a few decades, creams, gels, lacquers and ointments containing high percentages of urea are increasingly marketed for the treatment of nail conditions characterized by nail thickening and hardening. Their indications ranges from onychomycosis to psoriasis, onychogryphosis and other types of nail thickening. We report a case of acute allergic contact dermatitis of the periungual tissues after application of a cream with high concentration of urea under occlusion by tape.

Case Report

An 84-year-old man presented at our emergency consultation with an acute erosive bullous eruption of the 1st and 2nd left toes, lasting 2 days. Anamnesis revealed that 20 days

Figure 1

Acute paronychia of the left great toe and a bulla of the second toe.

before he had been prescribed SVR Xérial 50 Extréme cream® (SVR Laboratories, France) for an onychogryphosis of the 1st left toenail. Since then, he had regularly applied the cream every night covering the digit with a plastic bandage that he had removed only prior to the following application, after 24 hours. Dermatological examination revealed maceration of nail plate and periungual skin of the left 1st toe, with considerable periungual inflammation and erosions. A bulla was evident on the medial side of the 2nd left toe, which was considerably inflamed (Fig. 1). The patient complained of intense burning and itching.

Differential diagnosis included irritant and allergic contact dermatitis. Treatment included avoiding contact with the cream and daily soaking with an antimicrobial, followed by topical application of steroids. Remission of symptoms was complete after 4 weeks (Fig. 2).

Figure 2
Regression of symptoms after topical steroids.

We performed patch test using Finn Chambers on Scanpor® (Epitest Ltd Oy. Tuusula, Finland) with the Italian standard series called SIDAPA (Italian Society of Allergological, Occupational and Environmental Dermatology) and SVR Xérial 50 Extréme cream® as itself. Readings showed positive reactions both to colophony and to SVR Xérial 50 Extréme cream® after 48 hours and 72 hours (Fig. 3-4). We then patch tested the patient with the preservative series, which contains some of the ingredients contained in SVR Xérial 50 Extréme cream® (Table 1). We were unable to get the other cream ingredients from the manufacturer. The results at 48h and 72h were all negative. We made a diagnosis of acute allergic contact dermatitis of the 1st and 2nd left toenails due to both SVR Xérial 50 Extréme cream® and to the colophony present in the plastic bandage. In order to evaluate the possible irritative-allergic properties of SVR Xérial 50 Extréme cream®, we patch tested with it five patients as controls, and we did not detect any allergic or irritative reaction.

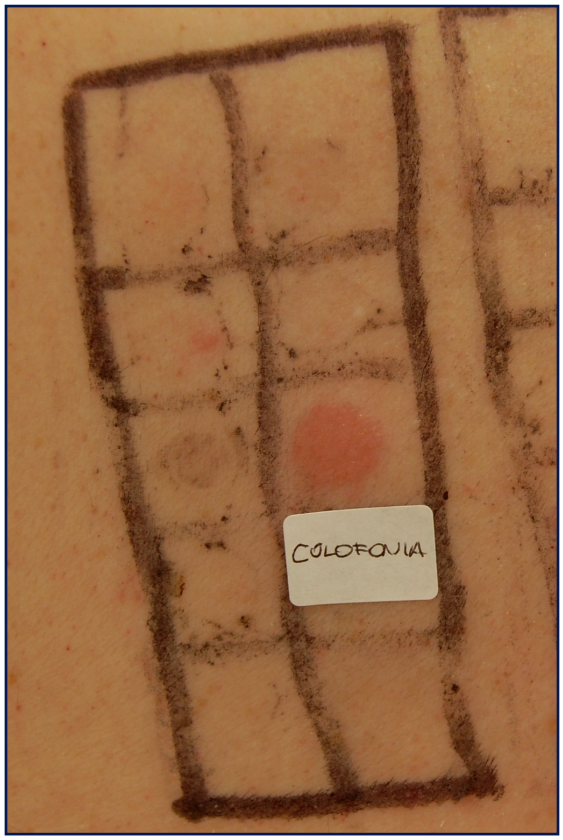

Figure 3
Positive patch test to Colophony (48h).

Figure 4
Positive patch test to SVR Xérial 50 Extreme cream® (48h).

Table 1. Components of SVR Xérial 50 Extreme cream®.

Urea
Butyrospermum Parkii Butter (Shea Butter)
Triethanolamine*
Isohexadecane
Salicylic Acid
Octydodecanol
Polyacrylate-13
Bacillus Ferment
Serine
Histidine
Octyldodecyl Xyloside
Peg-30 Dipolyhydroxystearate
Polyisobutene
Polysorbate 20*
Sorbitan Isostearate*
Propylene Glycol*
Disodium Edta*
Potassium Sorbate

** Indicates the substances we could patch test.*

Discussion

Our patients has an allergy to two different products: SVR Xérial 50 Extréme cream® and the colophony present in the plastic bandage used to cover the nail, after application of the cream. This association is quite unique and never been reported before.

Urea is widely utilized in topical products due to its moisturizing, keratolytic, lenitive and antimicrobial properties.[1] Its keratolytic effect is concentration-dependent: at concentrations of 30 to 50%, urea is able to soften and macerate the nail plate. For this reason, urea containing creams are widely marketed for home treatment of different type of nail thickening, since they allow a progressive painless softening of the nail plate that becomes easily trimmed. Side effects only include irritant cutaneous reactions to urea, which are dose dependent[2] and may be seen when the 50% cream applied on the nail reaches the soft periungual skin. An allergological study performed with a 10% urea-cream in a series of patients with skin eczema found 10% of positive reactions, defined as "toxic", since due to hypertonicity and acidity of the cream.[3] Occlusion enhanced the irritative effect. Our patient had an allergic contact dermatitis to Xérial 50 Extréme® cream possibly due to an ingredient other than urea. We could only test some of them without finding any positive reaction.

Our patient was also allergic to colophony, contained in the plastic band used to cover the toe after application of the cream. Colophony, also called rosin, is contained in many cosmetics and is a component of hydrocolloid dressings and adhesive tapes and plasters, due of its sticking properties. Colophony is a well known skin sensitizer[4] and contact allergy to colophony is quite common in the elderly.[5] Our patient had been affected by venous leg ulcer six years before our observation, and we suppose that he had become sensitized to colophony when his ulcers had been treated with hydrocolloid wound dressings.[6]

Conclusion

Our case is the first report of allergic contact dermatitis to a cream containing a high concentration of urea utilized for treatment of nail thickening and to the bandage used to cover it. Care should be taken when prescribing urea cream at high concentrations in the elderly. The cream should not be used under occlusion if the patient is not careful to avoid periungual skin application. Elderly patients should be followed-up periodically to evaluate the correct use of the product and to promptly diagnose development of irritative or, as in our case, allergic contact dermatitis.

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