

### Probable contact urticaria caused by tacrolimus-containing ointment in the treatment of atopic dermatitis

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#### Clinical Implications

- This is the first case report of probable contact urticaria from topical application of tacrolimus-containing ointment.

#### TO THE EDITOR:

A 4-year-old female Caucasian child presented with itchy skin lesions on the trunk and the extremities that were chronic since the age of 2. The patient had been treated with topical emollients without improvement. She had experienced a symmetrical facial rash when she was 6 months old. Her mother had a history of atopic dermatitis (AD) and allergic rhinitis.

On dermatological examination, the rash involved the back, thorax, and the knee flexor fold. The lesions included discrete round erythematous and hypopigmented plaques with clear center and squamous rim (Figure 1). The skin was overall xerotic. She had a normal complete blood count and blood biochemistry.

At presentation, the diagnosis of AD was made and treatment with topical tacrolimus 0.03% ointment BID was started. The parents refused administration of topical steroids because of concerns related to drug safety. On day 2 of tacrolimus treatment, the patient developed pruritic urticarial plaques involving the sites of tacrolimus ointment application (Figure 2, A and B).

The parents were reluctant to continuing the treatment. They refused patch testing with the ointment's ingredients.

We introduced desloratadine syrup, 2.5 mL/day, for 7 days and encouraged the parents to continue the application of tacrolimus every other day once daily. We continued the treatment for 10 days with complete resolution of both urticarial and AD lesions (Figure 2, C and D). At the thorax, postlesional hypopigmentation was observed at the site of previous AD lesions. Topical application of emollients was encouraged, and the patient had no recurrence of either AD or urticaria, in the follow-up period of 6 months.

The case presented here raises several interesting issues. First, we would like to emphasize the atypical presentation of AD with annular erythema-squamous plaques with clear center. The most probable differential diagnoses included erythema annulare centrifugum, granuloma annulare, or dermatosis neglecta. Upon the medical and family history we introduced topical treatment for AD. Topical calcineurin inhibitors (CNIs) are a topical treatment of choice for mild-to-moderate AD,<sup>1</sup> especially in cases of refusal of the use of topical steroids.

Contact allergy from CNIs has been reported.<sup>2,3</sup> In the prior published cases, the patients developed allergic contact dermatitis from the topical application of CNIs. As far as we are aware, our case is the first to be reported with the development of contact urticaria from topical application of tacrolimus-containing ointment. A limitation is the inability to perform a patch test and to discriminate if the reaction is due to tacrolimus itself or to the excipients in the ointment, namely, mineral oil, paraffin, propylene carbonate, white petrolatum, and white wax, amongst which plausible contact allergens.

Another key point is the management of the developed adverse event during the treatment process. We have decreased the application of tacrolimus once daily and introduced a systemic non-sedating H1-histamine blocker. We underscore the

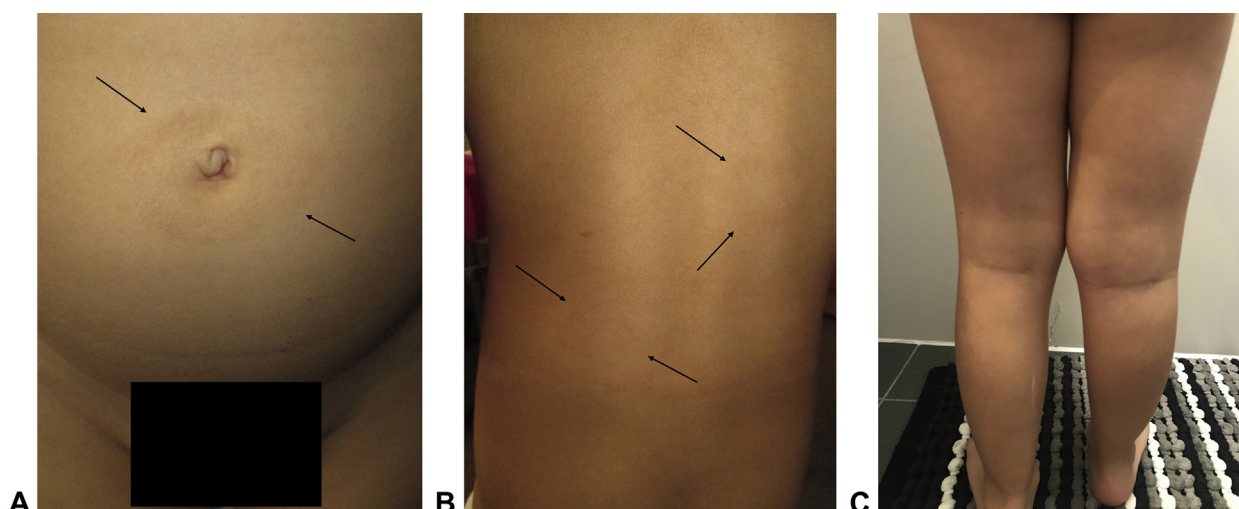


**FIGURE 1.** Discrete round erythematous and hypopigmented plaques with clear center and squamous rim around the nipple (A), on the patients back (B), and the knee folds (C).

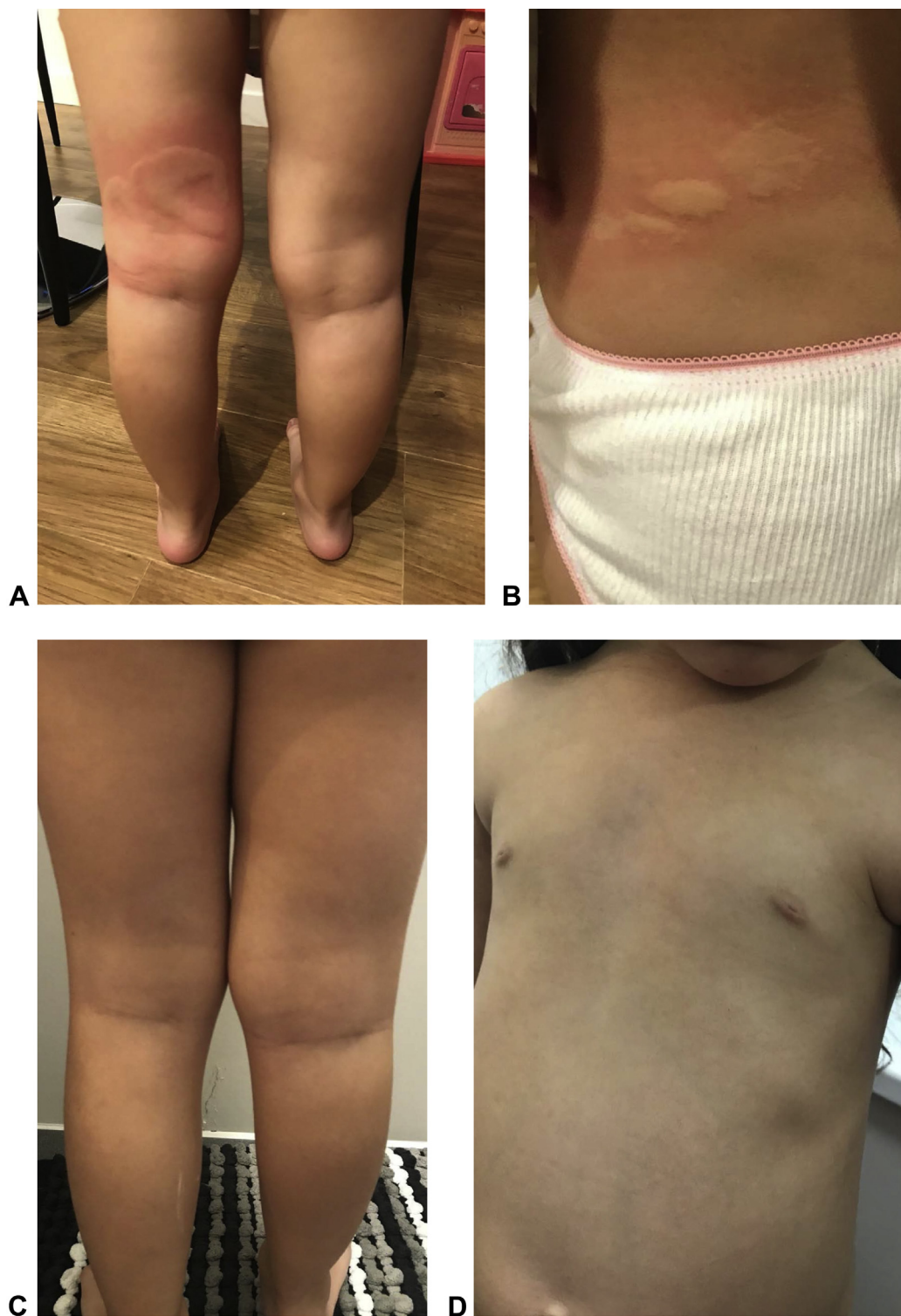


**FIGURE 2.** Development of urticarial lesions at the sites of tacrolimus application (**A, B**) and postlesional hypopigmentation at the site of previous atopic dermatitis lesions after the 10-day treatment (**C, D**).

need for motivation of the patient not to discontinue treatment, which resulted in complete resolution of the skin lesions.

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## REFERENCES

1. Wollenberg A, Barbarot S, Bieber T, Christen-Zaech S, Deleuran M, Fink-Wagner A, et al. Consensus-based European guidelines for treatment of atopic eczema (atopic dermatitis) in adults and children: part I. *J Eur Acad Dermatol Venereol* 2018;32:657-82.
2. Shaw DW, Eichenfield LF, Shainhouse T, Maibach HI. Allergic contact dermatitis from tacrolimus. *J Am Acad Dermatol* 2004;50:962-5.
3. Saitta P, Brancaccio R. Allergic contact dermatitis to pimecrolimus. *Contact Dermatitis* 2007;56:43-4.

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