

## Delayed-type reactivity to calcipotriol without cross-sensitization to tacalcitol

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Vitamin D<sub>3</sub> analogues have been successfully used in the topical therapy of psoriasis. Whereas mild irritant contact dermatitis is frequently observed after application of calcipotriol (1, 2) and is probably due to the vehicle (2), allergic contact dermatitis is a rare event (3–5).

### Case Report

A 54-year-old man with palmoplantar psoriasis for 2 years had been treated with calcipotriol ointment intermittently for 18 months. During the most recent course of treatment, erythema and itching had occurred at the site of application within 20 min. Subsequently, papulovesicles developed within 2–3 days. Therefore, calcipotriol treatment was stopped.

To investigate an allergic reaction to calcipotriol, skin tests were performed: repeated open application tests (ROAT) (6) resulted in erythema 20 min after application of calcipotriol; at D3, papulovesicles occurred. Patch tests using open and occlusive chambers both resulted in positive reactions to 2.0 µg/ml, increasing with time (+ at D2, ++ at D3; Table 1, Fig 1a). Patch tests with the vehicle (70% isopropanol) remained negative. A ROAT performed 6 months later confirmed the initial finding. Histological examination of a positive patch test reaction showed a dense perivascular lymphocytic infiltrate with exocytosis and spongiotic epidermis (Fig. 1b).

In vitro, stimulation of the patient's lymphocytes with calcipotriol resulted in a profound proliferation at low concentrations (10<sup>-12</sup>M), as determined by <sup>3</sup>H thymidine uptake. This effect was not seen with lymphocytes from 5 healthy control patients. At higher concen-

trations, an inhibition of lymphocyte proliferation, due to the known antiproliferative effect of calcipotriol, was observed in all subjects (Fig. 1c).

Interestingly, the patient did not exhibit positive patch test reactions to tacalcitol, nor did in vitro stimulation with tacalcitol result in increased lymphocyte proliferation.

### Discussion

The patient described here has Type IV allergy to calcipotriol, confirmed by in vivo and in vitro tests. Cross-reactivity to another vitamin D<sub>3</sub> analogue, tacalcitol, was excluded. This is of clinical importance, since vitamin D<sub>3</sub> analogues are widely used for the therapy of psoriasis with little or no side-effects. Our patient has now successfully been treated with tacalcitol for 1 year without any side-effects, confirming his lack of cross-sensitization. In contrast, in a patient with contact allergy to tacalcitol, cross-reactivity to calcipotriol was seen (7). We suggest that patients with calcipotriol sensitization should not necessarily be generally excluded from topical therapy with other vitamin D<sub>3</sub> analogues.

### References

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Table 1. Patch test results

| Test preparation              | D2 | D3 | D4 |
|-------------------------------|----|----|----|
| calcipotriol ointment 50 µg/g | +  | ++ | ++ |
| propylene glycol (5%)         | –  | –  | –  |
| isopropanol (70%)             | –  | –  | –  |
| calcipotriol 0.08 µg/ml       | –  | –  | –  |
| calcipotriol 0.4 µg/ml        | –  | –  | +  |
| calcipotriol 2.0 µg/ml        | +  | +  | +  |
| calcipotriol 5.0 µg/ml        | +  | ++ | ++ |
| calcipotriol 10.0 µg/ml       | +  | ++ | ++ |

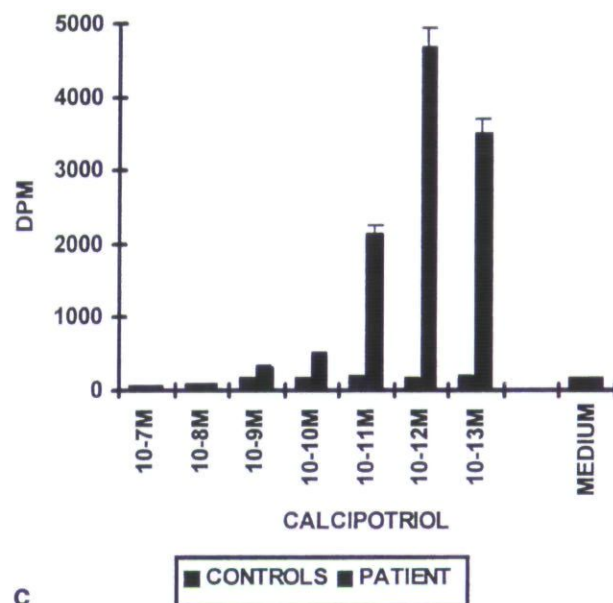
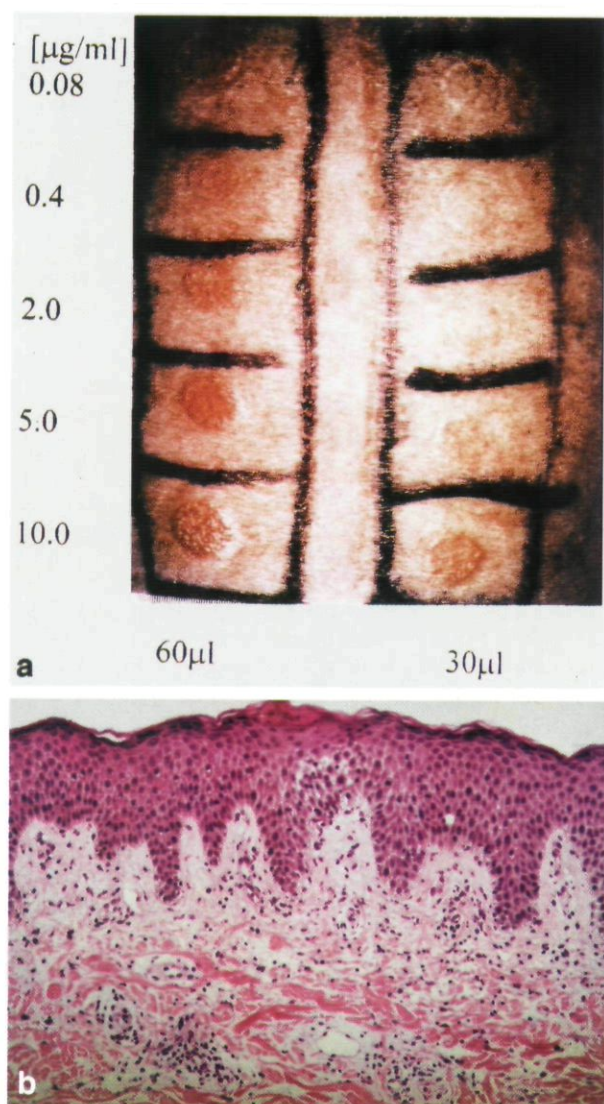


Fig. 1. (a) Test site 3 days after patch test with calcipotriol (concentration 0.08–10.0  $\mu\text{g/ml}$ ) in isopropanol 70%, using Finn Chambers. Left lane: 60  $\mu\text{l}$  of calcipotriol in isopropanol solution, right lane 30  $\mu\text{l}$ . (b) Histological section of a ++ patch test reaction taken 3 days after occlusive application of calcipotriol (5.0  $\mu\text{g/ml}$ ), haematoxylin-eosin staining, 160 $\times$ . (c) Lymphocyte proliferation in response to calcipotriol.

## Allergic contact dermatitis from ophthalmics: update 1997

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We previously reviewed allergic reactions to ophthalmic drugs and contact lens solutions and proposed an ophthalmic tray (1, 2). Subsequently, 9 additional ophthalmic allergens have been reported. We summarize them as before (Table 1) (1, 2). Most fall into categories previously described, but 2 represent new groups.

Diclofenac is a non steroidal anti-inflammatory drug used systemically for decades, but more recently also available in topical preparations (e.g., anti-inflammatory gels).

Although not common, corticosteroid contact allergens have become well-established; they may be even less

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