

# Successful Treatment of Therapy-Resistant Atopic Dermatitis with Clobetasol Propionate and a Hydrocolloid Occlusive Dressing

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During recent years, 48 patients with therapy-resistant chronic skin lesions of atopic dermatitis have been treated once a week with clobetasol propionate lotion left under Duoderm® occlusive patches. They had previously failed to respond, or responded only sparsely, to topical corticosteroids. The lesions resolved completely in 44 patients, while partial remission was observed in the remaining 4. The mean time needed to obtain complete remission was, for lichenifications, 2 weeks; pruriginous lichenoid papules, 12 days; chronic hand eczema, 2.5 weeks; nummular eczema, 8 days; perioral eczema, 11 days, and breast eczema, 10 days. Adverse experiences were mild and infrequent. The amount of topical corticosteroid required was reduced to at most one-twentieth and to as little as one-hundredth of the amount of common topical steroid treatment needed. We conclude that clobetasol propionate and Duoderm® once a week is the best treatment for resistant lesions of atopic dermatitis. **Key words:** Atopic dermatitis; Occlusive treatment; Duoderm.

Acta Derm Venereol (Stockh) 1992; Suppl. 176: 126–128.

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Corticosteroids under an occlusive plastic dressing have been used for the treatment of steroid-responsive dermatoses for a number of years. Occlusion enhances the effect of topical steroids (1), and it promotes the rate and extent of percutaneous absorption (2, 3), probably by increasing the degree of hydration of stratum corneum. However, the plastic dressing had to be changed daily, and it was often found unpleasant. Other disadvantages include atrophy of the skin, maceration, microbial overgrowth, poor adhesion, allergic sensitization and the need for daily maintenance.

The habit of scratching or rubbing the skin is often the factor causing and perpetuating skin lesions such as lichenifications. This can be prevented by covering the lesions with a hydrocolloid protective dressing, such as Duoderm®, which is protective and eliminates local trauma and irritation. Duoderm® is self-adhesive and can be left on the skin for a week or more. It hinders the overgrowth of skin microflora (4–5). It is waterproof, which is why it is possible to take a bath or a shower while using this patch. It does not cause skin maceration, as it absorbs transepidermal water. There have been recent reports of the beneficial effects of topical steroids occluded with a hydrocolloid dressing in the management of steroid-responsive dermatoses (6–10). Occlusion with the hydrocolloid occlusive dressing Actiderm® alone has been shown to improve psoriasis (11, 12). It has been shown that the longer the occlusive period is, the more effective is the treatment (13). The resolution of chronic psoriatic plaques is accelerated when occlusive patches are used in conjunction with topical steroids (14).

The purpose of the present study was to assess the efficacy and safety of treating therapy-resistant skin lesions of AD patients with an occlusive dermatological patch (Duoderm®) in combination with a topical steroid and to leave the skin occluded for a week.

## PATIENTS AND TREATMENT

### Patients

Forty-eight patients with different chronic skin lesions of patients with AD were enrolled in the study. They were required to have had stable skin lesions without any previous topical therapy for the preceding 2 weeks. Forty-five were out-patients and the remaining 3 were in-patients. Most of the lesions to be treated had already been treated with medium-strength or strong steroids alone, with no or only little effect. Five patients with lichenifications and 6 with nummular eczema had not previously been treated with steroids. Informed consent was obtained from each patient before the start of the study. The following skin lesions of patients with AD were treated.

**Lichenification.** Nineteen patients with lichenification (11 men and 8 women, age range 7–41 years, mean 17) localized on the antecubital or popliteal fossae or on the feet, back of the hands or on the arms were included. The duration of the present lesions was 3–16 months.

**Pruriginous lichenoid papules.** Four patients (3 men and one woman, age 14–37 years, mean 21) with pruriginous lichenoid papules on the trunk or extremities were enrolled. The lesions to be treated had been present for 2–5 months.

**Chronic hand eczema.** Seven patients (5 men and 2 women, age range 21–53 years, mean 36) had had therapy-resistant chronic hand eczema from 5 to 18 months.

**Nummular eczema.** Twelve patients (8 men and 4 women, age range 10–69 years, mean 27) with nummular eczema on the extremities or trunk were included. They had had the present lesions from 3 weeks to 5 months.

**Perioral eczema.** Two female patients (ages 36 and 44 years) with perioral eczema most likely induced and perpetuated by licking were included. The eczema persisted despite intermittent topical steroid treatment, and they had had the perioral eczema for one and 2 years respectively.

**Breast eczema.** Four women (ages 16 to 23 years, mean 18) had had therapy-unresponsive breast eczema for 6 months to 2 years.

### Treatment

The corticosteroid used was clobetasol propionate (Dermovat®, Glaxo) lotion.

Duoderm Hydrocolloid Dressing and Duoderm Extra Thin Hydrocolloid Dressing (ConvaTec, Squibb) were used. Duoderm consists of an outer protective polyolefin film covering a mixture of synthetic polymers that adhere to dry skin, and natural hydrocolloid polymers that absorb moisture, thus allowing adhesion to moist surfaces.

Clobetasol propionate lotion was applied on the lesions to be treated and was allowed to dry. Each lesion and 0.5–1 cm of the surrounding skin was then covered with Duoderm, which was attached to the surrounding skin with Micropore tape. This procedure was repeated once a week until the treated area cleared. The reason for that was that the improvement in psoriasis lesions was not significantly greater with once a week treatment with clobetasol propionate than in those lesions treated once a day with the same agents (E. J. Fisker-

Table I. Response rates in different chronic skin lesions of atopic dermatitis to clobetasol propionate and Duoderm.

Skin lesions	Number of patients	Treatment results		Time to complete remission	
		Complete remission	Partial remission	Mean	Range
Lichenification	19	17	2	2.0 weeks	1-4 weeks
Pruriginous lichenoid papules	4	4		12 days	1-4 weeks
Chronic hand eczema	7	5	2	2.5 weeks	2-5 weeks
Nummular eczema	12	12		8 days	6-14 days
Perioral eczema	2	2		11 days	10-12 days
Breast eczema	4	4		10 days	1-3 weeks

strand and G. Volden, unpublished results). Clinical rating of the effect of therapy was performed once a week.

## RESULTS

All the patients completed the treatment schedule. The responses to treatment are summarized in Table I, showing that the lesions healed completely in 44 out of 48 patients (92%), and partial remission defined as more than 50% clearance was observed in the remaining 4 patients (8%). Complete remission of the different skin lesions of AD was obtained after a mean time ranging from 8 days to 2½ weeks. The patients who had partial remission were treated from 3 to 5 weeks. Only a few patients treated to complete remission experienced local recurrence on the previously treated areas at the follow-up examinations 2 to 14 months later.

Duoderm was well accepted by the patients in this trial, and it provided instant relief from scratching. Two patients developed a mild folliculitis, but otherwise no visible infection was observed.

## DISCUSSION

These results suggest that once a week treatment with clobetasol propionate and Duoderm is highly effective against various chronic skin lesions of AD. The time required to obtain complete remission is very short. It is impressive since most of these lesions had been treated earlier with medium-strength or strong steroids alone, with little or no effect. The combined effects of the topical corticosteroid and the completely occlusive patch considerably enhanced the speed of resolution of the treated skin lesions. Occlusion with Duoderm alone improves psoriasis (E. J. Fiskerstrand and G. Volden, unpublished results). It seems that occlusion with Duoderm plays a synergistic role with topical steroids in ameliorating inflammatory skin lesions.

The patients readily tolerated the hydrocolloid occlusive patch known as Duoderm. They found that it provided flexibility with no significant discomfort, and it is self-adhesive, waterproof, easy to apply and can be cut to any shape. A great advantage is that Duoderm can be left in place on the skin for a week or more without the maceration or infection that are frequent problems when the skin is occluded with plastic films. Duoderm can provide instant relief from exfoliation and protect clothing from blood or ointments.

Application of topical steroids is reduced to at most one-

seventh, because it is applied only once a week compared with steroids alone applied once or twice a day. The treatment time is additionally reduced which is why the total amount of topical steroids is reduced to at most one-twentieth to at least one-hundredth. Atrophy of the skin is therefore very unlikely and was not observed in our patients.

The mechanism of action of a topical steroid left under a completely occlusive patch for a week is not known. The protection from physical trauma may play an especially significant role in areas of for instance lichenification. It may also be important to make the patient aware of the habit of scratching which is often the factor causing and perpetuating skin such lesions as lichenification, neurodermatitis, etc.

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