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Nonadherence to Treatment with Topical Calcipotriol/Betamethasone Dipropionate Cutaneous Foam due to a Dog Licking off Psoriasis Scales: A Case Report

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Abstract

Objective: We describe a psoriasis patient who let his dog lick his psoriasis lesions, which resulted in nonadherence to prescribed topical calcipotriol/betamethasone dipropiontae (Cal/BD) cutaneous foam.

Methods: The patient's adherence to (Cal/BD) cutaneous foam was objectively monitored by a chip in the medication dispenser and the patient was subsequently visited at his home to observe the dog's licking process and obtain clinical photos.

Conclusion: Topical antipsoriatic drugs containing corticosteroid/calcipotriol preparations are first-line treatment for mild-to-moderate psoriasis, but adherence rates to topical antipsoriatic drugs are low and a barrier for full efficacy of the treatment. Physicians should be aware that a dog licking off psoriasis scales can lead to nonadherence to topical treatment as well as expose the dog owners and their dogs to a risk of adverse events.

Keywords: ***Adherence; Symbiosis; Adverse events***

Abbreviations: ***Cal/BD:*** *Calcipotriol/Betamethasone Dipropionate*

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Introduction

Topical antipsoriatic drugs containing corticosteroid/calcipotriol preparations are one of the recommended first-line therapies for treating mild-to-moderate psoriasis [1], but for many different reasons [2] adherence rates to topical drugs are low [3] and

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present a barrier to treatment success [4]. Patients with chronic diseases benefit from close contact with pets [5], but the active participation of pets in procedures that relieve the symptoms of patients is rarely addressed in the clinic.

We present a psoriasis patient whose dog licked off his psoriasis scales. This led the patient to become nonadherent to the prescribed calcipotriol/betamethasone dipropionate (Cal/BD) cutaneous foam.

Case Report

The patient was a 65-year-old male and a retired mechanic. He divorced 20 years ago and lived alone with his dog. The patient had mild-to-moderate psoriasis for 48 years and did not suffer from any significant co-morbidities. His psoriasis mainly affected his arms and was treated with potent corticosteroids and Cal/BD prescribed by his general practitioner and a local dermatologist.

The patient's dog was a 3-year-old male Jack Russell terrier in good health. He had bought the dog when it was still a puppy, and shortly after it had developed the habit of licking off psoriasis scales on its owner on body areas not covered by clothes, although it abstained from licking when the skin was greased by cream, foam, or ointment. The patient experienced relief from itching when the dog licked off the scales.

Figure 1: The Jack Russell terrier is licking off psoriasis scales from his owner's right elbow. A few minutes before the photo was taken, the Jack Russell terrier had licked and descaled the right side of his owner's right elbow.

The patient had responded to a patient recruitment advertisement for a clinical trial conducted at our department. He was enrolled in the clinical trial, which tested for efficacy from improved use of Cal/BD cutaneous foam over a 4-week treatment period [6]. Objective adherence measurements were obtained in the trial; an electronic monitor attached on the Cal/BD cutaneous foam canister revealed the patient had only applied treatment on 70% of days in the treatment period. When the patient was interviewed about why he had not applied the topical treatment every day during the treatment period, he admitted he abstained from applying the topical drugs on the skin areas licked by the dog on the days he did not wear long sleeves covering his arms. The patient invited the trial staff to his home to observe how the dog licked off the psoriasis scales.

The trial staff visited the patient at his home. Written informed consent to publish the patient case details was obtained. At the home visit, the dog on its own initiative jumped up and licked off scales from psoriasis plaques on the patient's right elbow (Figure 1). The psoriasis plaques had marked elevation and erythema and moderate scale. Immediately after the dog licked the psoriasis plaque for approximately 30 sec, the skin had a wet look. In a short while, the skin dried, and the psoriasis plaque on the elbow appeared again with elevation, erythema, and mild scale.

Discussion

This case report adds a dog licking off scales to the multifactorial determinants of psoriasis patients' non-adherence to the topical treatment [2].

We suggest the licking procedure may preferably be classified as a symbiosis [7] between the dog and dog owner; the dog benefitted from close contact with its owner since the repeated nature of licking can reduce stress in the dog [8]. The dog owner with plaque psoriasis benefitted from an immediate relief of itching.

In addition to non-adherence to topical treatment, the act of a dog licking off psoriasis scales exposes the patient and dog to a risk of adverse events that need to be addressed by the prescribing physician (1-3):

1) Fatal calcipotriol poisoning in the dog; case reports of dogs licking off corticosteroid/calcipotriol containing products have been reported as a cause of calcipotriol poisoning in dogs [9], and the owner should be encouraged to take precaution to avoid the dog lick off and thereby ingest calcipotriol, but if this accidentally happens the dog-owner needs to be advised to consult a veterinarian to have the dog's serum-calcium level checked.
2) Flare-up in the patient's psoriasis; the licking might aggravate psoriasis due to microtrauma or even trigger psoriasis if the dog licks non-affected skin (Koebner's phenomenon), and if this occurs, the patient should be advised to abstain from letting the dog lick the skin.
3) Infection in the patient's skin; a dog licking the skin may also result in infection by transferring the pathogens that cause skin infections when dogs bite humans [10] (e.g., *Pasteurella multocida and Capnocytophaga canimorsus*), and dog owners need to be adviced to seek medical assistance if sign of a cutaneous infection occurs.

In conclusion, physicians are encouraged to ask their psoriasis patients if they are dog owners; and in case the patient is a dog owner, ask the patient if the dog licks off psoriasis scales. Physicians need to consider the possibility that dogs licking psoriasis scales off their owners can result in non-adherence to topical treatment, which leads to low efficacy from the drugs, and in addition expose the dog owner and the dog to adverse events from the licking.

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Disclosure

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