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ORIGINAL ARTICLE/ARTICLE ORIGINAL

Efficacy of a 2% climbazole shampoo for reducing *Malassezia* population sizes on the skin of naturally infected dogs



Efficacité d'un shampoing contenant 2 % de climbazole pour réduire le nombre de levures Malassezia à la surface de la peau chez le chien

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KEYWORDS

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Malassezia pachydermatis;
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Summary

Objective of the study. — Shampoo therapy is often recommended for the control of *Malassezia* overgrowth in dogs. The aim of this study was to evaluate the in vivo activity of a 2% climbazole shampoo against *Malassezia pachydermatis* yeasts in naturally infected dogs.

Animals. — Eleven research colony Beagles were used.

Materials and methods. — The dogs were distributed randomly into two groups: group A ($n = 6$) and group B ($n = 5$). Group A dogs were washed with a 2% climbazole shampoo, while group B dogs were treated with a physiological shampoo base. The shampoos were applied once weekly for two weeks. The population size of *Malassezia* yeasts on skin was determined by fungal culture through modified Dixon's medium contact plates pressed on left concave pinna, axillae, groins, perianal area before and after shampoo application. Samples collected were compared by Wilcoxon rank sum test.

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MOTS CLÉS

Climbazole ;
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pachydermatis ;
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Chien

Results. — Samples collected after 2% climbazole shampoo application showed a significant and rapid reduction of *Malassezia* population sizes. One hour after the first climbazole shampoo application, *Malassezia* reduction was already statistically significant and 15 days after the second climbazole shampoo, *Malassezia* population sizes were still significantly decreased. No significant reduction of *Malassezia* population sizes was observed in group B dogs.

Conclusion. — The application of a 2% climbazole shampoo significantly reduced *Malassezia* population sizes on the skin of naturally infected dogs. Application of 2% climbazole shampoo may be useful for the control of *Malassezia* overgrowth and it may be also proposed as prevention when recurrences are frequent.

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Résumé

Introduction et objectif. — L'application d'un shampooing antifongique est souvent préconisée lorsque de nombreuses levures du genre *Malassezia* sont mises en évidence sur la peau du chien. L'objectif de cette étude était d'évaluer l'efficacité d'un shampooing contenant 2 % de climbazole chez des chiens naturellement colonisés.

Animaux. — Onze chiens de race Beagle ont été utilisés.

Matériel et méthodes. — Les chiens ont été randomisés en deux groupes. Les chiens du groupe A ($n = 6$) ont été lavés avec un shampooing contenant 2 % de climbazole et les chiens du groupe B ($n = 5$) ont été lavés avec un shampooing physiologique. Les shampooings ont été appliqués une fois par semaine pendant deux semaines. Avant et après l'application des shampooings, le nombre de levures *Malassezia* a été évalué par apposition de boîtes de contact (contenant un milieu de Dixon's modifié) sur le pavillon auriculaire gauche, les aisselles, l'aîne et la région périnéale.

Résultats. — Pour les chiens du groupe A, la réduction du nombre de levures *Malassezia* a été observée dans l'heure qui a suivi l'application du shampooing contenant 2 % de climbazole. L'effet antifongique a été maintenu jusqu'à 15 jours après la seconde application du shampooing. Le shampooing physiologique ne semble avoir aucun effet sur les populations de levures *Malassezia*.

Conclusion. — L'application d'un shampooing contenant 2 % de climbazole réduit de façon significative le nombre de levures *Malassezia* sur la peau des chiens. Ce shampooing pourrait être préconisé dans le cadre du traitement des dermatites à *Malassezia* ou pour limiter le risque de rechute.

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Introduction

Malassezia pachydermatis is a lipophilic but non-lipid-dependent commensal yeast on the skin and in the external ear canal of dogs and cats [7]. It is the main *Malassezia* species isolated from dog skin. The proliferation of the yeast is frequently reported whenever alterations in the skin surface microclimate or host defence occur [21]. In dogs, *Malassezia* overgrowth is recognised as a complication in hypersensitivity disorders, keratinisation defects, endocrine dermatoses, immunologic dysfunction, staphylococcal pyoderma, and long-term glucocorticoid therapy. Genetic predisposition is suspected in certain breeds and West Highland white terrier, basset hound, Shih Tzu, American cocker spaniel, and Cavalier King Charles spaniel are at significantly increased risk for *Malassezia* dermatitis [2–19]. A recent evidence-based review recommended with fair evidence systemic drugs as ketoconazole or itraconazole and with good evidence topical therapy with 2% miconazole nitrate and 2% chlorhexidine gluconate shampoo for *Malassezia* dermatitis treatment [21]. Systemic antifungal agents may be associated with serious side effects and high cost [20–22]. Since

M. pachydermatis is located on the *stratum corneum*, topical therapy alone may be sufficient to resolve the clinical signs of infection or may allow reducing the duration of systemic therapy [2]. Shampoo therapy is especially suitable for generalized *Malassezia* infection but may also be beneficial as a preventive to decrease the recurrence rate [18–23]. However, only few studies have evaluated the effectiveness of shampoos against *Malassezia* yeasts in dogs. The efficacy of shampoos containing from 2% to 4% chlorhexidine was demonstrated in vitro [13–29] as well as in vivo in association with miconazole [5–17] or alone [11–17]. Climbazole is a member of the azole chemical group and is incorporated in some veterinary products (shampoos or wipes). It has been found effective in vitro against *Malassezia* yeasts [25–27]. In dogs, a 3% chlorhexidine and 0.5% climbazole shampoo was effective to reduce *Malassezia* yeasts in naturally infected dogs [6]. In humans, climbazole is often an ingredient in shampoos used to reduce seborrheic dermatitis associated with *Malassezia* proliferation [27,28].

To our knowledge, no study has evaluated the efficacy of a shampoo containing only climbazole as active principle for decreasing *Malassezia* population sizes in dogs.

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