

How much does skin barrier count for allergic dermatitis improvement?

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Introduction

Allergic dermatitis is a genetic-based skin condition affecting an increasing number of dogs (1). A more efficient treatment approach is often multimodal, including a special focus on **skin barrier condition**, from which many pruritic triggers depend as well as common complications (2).

Like in humans, for the development of canine atopic dermatitis (cAD), **defects in the lipid and protein constitution of the skin** may contribute to the reduction of the skin barrier function, favoring the **in depth penetration of allergens** (3) and **stimulating the immune response** as an **outside/inside - inside/outside paradigm** (4).

Results

Three patients showed evident clinical improvement (No. 2, 3, and 5) with (10, 19 and 11 respective decrease in CADESI-4 scores), 1 moderately (No. 4) with (3 in CADESI-4) and 1 (No. 1) did not (1 in CADESI-4)

IDT results did not vary from before to after treatment.

Non-keratinized epidermal layer/*stratum corneum* thickness ranged respectively 12/4 (N) to 330/300 μm (L) before treatment and 10/4 (N) to 120/120 μm (L) after treatment (Fig.).

Lamina cornea organization tended to increase with **no clear change in collagen fibers** (vG – Fig.).

Mast cell density and integrity improved in the recovered patients with a mean drop of 15.2% and an increase of 22.8%, respectively (TB – Fig.).

Conclusions

Skin barrier-directed reestablishing measures in allergic dermatitis:

1. Allow for an **effective and significant clinical improvement**, even as a single choice approach.
2. Should be considered as **non-side-effect procedures**, especially when a curative immunological approach is not possible or effective.

Aim

Evaluating the **specific role of skin barrier-directed reestablishing treatment in allergic dermatitis clinical improvement**

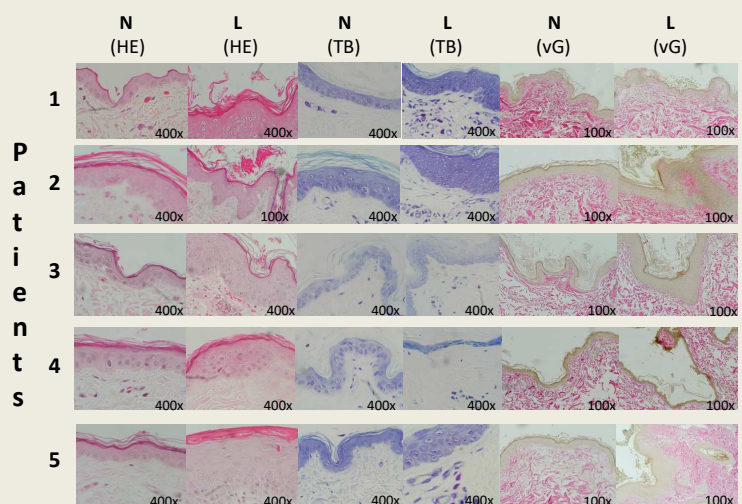
Materials and Methods

Five dogs with allergic dermatitis were selected from an allergy outpatient consultation following owners' informed consent approved by an ethics committee. Patients were subjected to CADESI-4 evaluation and specific diagnosis for atopy and/or food allergy, including IDT.

Skin biopsies were performed from a non-infected inflamed and adjacent non-affected area, and conserved in 4% buffered formaldehyde. Follow up lasted for 2-3 months, applying avoidance measures directed to the implicated allergen sources and treating with a phytosphingosine-containing shampoo/lotion, according to the manufacturer's directions. Reassessment was done each 10-15 days with CADESI-4 and further IDT and skin biopsies performed at the end.

Skin samples were histologically processed including staining with toluidine blue for mastocytes and van Gieson for collagen fibers. Thickness of the non-keratinized epidermal layer and *stratum corneum* as well this lamina organization were accessed and scored 1-5. Mast cell density and integrity, and collagen density in the dermal layer were also assessed and scored (%). Normal (N) and lesion (L) data, before and after treatment, were compared.

Figure (Illustrative)



References

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