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Canine Atopic Dermatitis

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Canine Atopic Dermatitis – a Summary
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Canine atopic dermatitis (AD) is a common skin disease. It is commonly associated with flea and food hypersensitivities. AD is caused by a combination of acute and delayed allergic reactions directed toward environmental allergens such as house dust mites (Dermatophagoides sp.), molds, mammalian allergens (cats) and various pollens. The route of allergen penetration is now suspected to be principally via the skin. Atopic dermatitis is accompanied also by cutaneous immunological aberrations, increased prevalence of cutaneous infections and possibly epidermal barrier defects.

Clinical signs of AD usually appear between six months and three years of age in dogs from genetically-predisposed breeds. Erythematous macules, patches and small papules develop on sites of friction, especially if they are devoid of hair coat. These lesions therefore develop in the axillary and inguinal regions, flexural zones of the limbs, ventral aspect of the feet, ventral tail, perineum and concave aspect of the ear pinnae. Pruritus is reported in all patients. Itching leads to self-trauma and formation of secondary lesions that include lichenification, hyperpigmentation, scaling, excoriations and self-induced alopecia. Allergic conjunctivitis may be present and manifest as conjunctival edema and congestion as well as periocular scratching and skin lesion appearance. Allergic rhinitis may be the cause of facial scratching. All skin lesions may be complicated by the development of secondary infections with surface epidermal pathogens that include *Staphylococcus intermedius* and *Malassezia pachydermatis*. Similar secondary infections can occur in the external ear canals.

A diagnosis of AD is based on suggestive clinical signs, history and excluding other pruritic skin diseases. Intradermal testing and allergen-specific IgE serology (serum allergy test) may be used to identify offending allergens prior to specific immunotherapy. These should be considered as an aid to management rather than as

diagnostic tools.

Prognosis is highly variable. Some dogs may exhibit seasonal variation in the intensity of the disease. Some dogs experience frequent relapses of cutaneous infections. A subset of animals may need continuous antipruritic therapy.

Diagnosis of canine atopic dermatitis

- Onset of clinical signs between 6 months and 3 years of age
- Ventral & facial distribution of pruritus and erythema: peri-orbital, muzzle, interdigital, axilla, groin.
- Recurrent otitis externa
- Steroid-responsive pruritus
- Breed predisposition or family history

Occasional features:

- Acral lick dermatitis
- Hyperhydrosis (increased perspiration)
- History of urticaria or angioedema
- Seasonal worsening of symptoms
- Modification of symptoms when travelling to different locations

An attempt can be made to identify culprit allergens by combining results obtained from a detailed history as well as serum allergy testing (determination of circulating allergen-specific IgE) and/or intradermal testing. After proper identification of the allergens and documentation of clinical relevance, immunotherapy can be initiated. This treatment protocol consists of repeated subcutaneous injections of increasing doses of culprit allergens in an attempt to provoke peripheral tolerance (i.e. desensitization of the immune system to these antigens). Unfortunately, this approach is costly (cost of allergy testing and therapy) and the clients may not expect results before 6 months to one year. Additionally, it is expected that only 60-80% of patients undergoing this treatment will exhibit a reduction of clinical signs greater than 50%.

During the build-up phase of immunotherapy, or in lieu of this protocol, the clinicians may select the pharmacotherapy route to treat canine AD skin lesions. Currently, the most active pharmacological agents are topical and systemic glucocorticoids. These medications are very effective as they inhibit the activation of most cells involved in the allergic reaction. Unfortunately, prolonged use of these drugs leads to the development of adverse side-effects such as skin atrophy, polyuria, polydipsia and polyphagia, muscle weakness and appearance of secondary bacterial infections or parasitic (e.g. Demodex) infestations. Other medications that have been proposed to relieve symptoms of canine AD include antihistamines, essential fatty acids, pentoxifylline and misoprostol. Unfortunately, the evidence for efficacy of these drugs is not strong, as most of these drugs have been evaluated in unblinded open clinical trials or blinded studies involving small numbers of patients. Finally, the use of "anti-allergic" (e.g. oatmeal-containing) or "anti-pruritic" (e.g. containing either lidocaine or pramoxine) topical formulations (shampoos, rinses or conditioners) has also been proposed. However, evidence for efficacy of these medications is currently awaited.

Therapeutic approach to canine atopic dermatitis – a summary

 # 1. Minimize allergen exposure

Excellent flea control

Good quality highly digestible diet/ rich in essential fatty acids
Allergen avoidance if possible and allergens known
Frequent bathing with hypoallergenic shampoos

 # 2. Control secondary infections

Systemic antimicrobial therapy
Routine bathing with topical anti-microbial agents
Otic hygiene

 # 3. Treatment of pruritus

mono-or combination pharmacotherapy with corticosteroids or other drugs

 # 4. Immunotherapy

Allergen specific immunotherapy based on intradermal/ serological testing.

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