



5.1.3. Understanding and Managing the Allergic Pet

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Canine atopic dermatitis is one of the most common canine skin disorders treated by veterinarians and the best outcomes are typically associated with early recognition and control when there is the best chance of avoiding long-term complications such as infections, skin barrier disruption, and chronic inflammatory changes in the skin. Atopic dermatitis starts in a genetically predisposed dog that may have a defective skin barrier that allows for the percutaneous overabsorption of environmental allergens. Less commonly, allergens also are absorbed through inhalation and ingestion. The result of this allergen overabsorption is an aberrant T-cell response in which cytokines are produced that promote inflammation and itch. Managing patients with atopic dermatitis requires a proactive approach to manage the underlying pathogenesis, control acute flares, and hopefully prevent chronic inflammatory changes from occurring that would otherwise complicate the management of this condition over the life of the pet. This is preferred over a more reactive treatment plan focusing on repeated courses of intensive short-term treatment of active inflammation and infection. Treatment relies on controlling the itch and inflammatory aspects of the disease, helping to repair barrier function, and down-regulating the abnormal immune response with appropriate medications and/or immunotherapy.

Prevention:

There are no foolproof methods for preventing atopic dermatitis. The risk can be minimized by selecting puppies with no family history of atopic dermatitis, especially in high-risk breeds. It is theoretically possible that supplementation with probiotics and/or omega-3 fatty acids rich in eicosapentaenoic acid could be of some benefit when provided to pregnant bitches and puppies of high-risk breeds, but definitive evidence is lacking.

Detection:

Canine atopic dermatitis is a clinical diagnosis and one often made by exclusion of other pruritic dermatoses such as parasitism, adverse food reactions, and associated bacterial (often *Staphylococcus pseudintermedius*) and yeast (*Malassezia pachydermatis*) overgrowth/infection. Allergy testing, either by intradermal or serum evaluation, does not confirm a diagnosis but may be useful when selecting allergens for immunotherapy. Since atopic dermatitis is considered a heritable trait, owners of at-risk breeds should be appropriately counseled to recognize early signs of the disorder, such as licking and chewing at the feet, face rubbing, pinna redness, and rashes in the inguinal and axillary areas. Pet owners should also be advised that pet insurance can be an excellent hedge against the costs of long-term allergy management. Policies should be acquired at the earliest possible opportunity before any allergy condition could be considered pre-existing and excluded from coverage. The policy should cover chronic allergy care since atopic dermatitis is considered a lifelong condition.



Treatment:

Since most allergic dogs will require lifelong care, it is important that they be re-evaluated often and that year-round parasite control be in effect, secondary microbial infections be quickly managed, and that surface barrier function be restored or at least managed. Glucocorticoids can be tolerated for acute short-term therapy, but are not preferred for long-term itch control due to their relatively high incidence of side effects. The sooner the pet is on appropriate long-term therapy, the better the chance for successful lifelong control of itch, inflammation and secondary infections. Immunotherapy is best considered early in the treatment process when the prospects for successful immune regulation and prevention of disease progression are best, rather than leaving this as an option for the late-stage or end-stage patient.

Treatment for atopic dermatitis in the dog might include the following (see Table 1):

- Oclacitinib, a selective Janus Kinase inhibitor, is fast acting (typically within the first day) and can be used for the treatment of acute or chronic inflammation and pruritus. It works by inhibiting cytokine-mediated inflammatory reactions in the skin and itchs specific nerve signal pathways.
- Lokivetmab is an injectable agent that targets and neutralizes IL-31, a key itching inducing cytokine. It's the first monoclonal antibody for chronic canine allergic and atopic dermatitis. For maintenance, it is typically given as an in-office injection every 4-8 weeks.
- Corticosteroids (glucocorticoids) are suitable for very short-term "crisis-busting" treatment as they provide good management of acute flares of pruritus, but have many health risks if used for long-term treatment. Options include prednisone or prednisolone or methylprednisolone (initially daily, in divided doses if needed, then tapering to alternate days), or a corticosteroid/antihistamine combination (which may reduce the corticosteroid component needed to achieve relief). Occasionally an initiating injection of dexamethasone sodium phosphate is contemplated, if near-immediate relief is needed. Topical corticosteroids can also be helpful for localized anti-itch treatment, starting with more potent products such as triamcinolone spray on a tapering frequency, then converting to a safer hydrocortisone spray for long-term therapy of known problem areas.
- Cyclosporine is an immunomodulating drug with immunosuppressive effects that is used in the treatment of canine atopic dermatitis. It is typically administered daily at first, then tapered by decreasing the frequency until a minimum frequency is reached that maintains the desired therapeutic effect. Cyclosporine is not preferred for acute pruritus or short-term therapy since it may take up to several days or even weeks to achieve the desired effect.
- Allergen-specific immunotherapy (hyposensitization) is a method of gradually introducing allergens to which there is sensitivity in a way that may down-regulate the allergic response and raise the allergic threshold. It is the only therapy we have that can actually curb disease progression over time and lessen the need for long-term medications. Because it may take months or years for improvement to be seen, it is best to consider immunotherapy early in the course of the disease rather than as a last resort therapy in an end-stage allergic patient. Immunotherapy can be administered as subcutaneous injections or sublingual drops.



- Bathing and topical therapy are important components of allergy management for controlling inflammation, removing allergens from the skin and haircoat, helping repair barrier function, and decreasing microbial overgrowth on the skin surface. Bathing in cool water is soothing to the skin, and antipruritic shampoo ingredients include colloidal oatmeal, antihistamines, corticosteroids, and topical anesthetics (e.g., pramoxine). Topical therapy with fatty acids and ceramide precursors (e.g., phytosphingosine, Noctadecanoylphytosphingosine) may help restore normal barrier function, although they are rarely sufficient on their own in controlling the condition. Periodic use of antiseptic agents (such as chlorhexidine, ethyl lactate, benzoyl peroxide, micronized silver, and even dilute sodium hypochlorite) can help control bacteria and yeast on the skin surface, which can act as major flare factors and worsen pruritus. Most allergic dogs will require therapeutic bathing several times a week initially to get the itch and infection under control. Bathing can then be tapered to an interval that is medically appropriate yet manageable for owners, such as once or twice weekly.
- Omega-3 fatty acids, specifically eicosapentaenoic acid (EPA), can be beneficial for atopic dogs by helping to restore the skin barrier and reducing inflammation in the skin. They are used more as adjunctive chronic therapy since there is a relatively low success rate when used alone, and it can take up to 2-3 months to see clinical improvement. The relatively high levels needed for benefit are sometimes not well tolerated by dogs and may cause loose stools, flatulence and/or halitosis. Management can be achieved through oral administration of appropriate supplements, or by feeding diets that have been formulated to be rich in this particular fatty acid.
- Antihistamines are typically safe with few side-effects (other than sedation with some products), but have a low success rate in treating itch in dogs with atopic dermatitis, and most represent extra-label drug use. The most commonly used products include hydroxyzine, cetirizine, clemastine, chlorpheniramine, and diphenhydramine. Given the low rates of efficacy and compliance, antihistamines are often not suitable for acute or long-term therapy. If used at all, they should be combined with other more effective therapies in mild cases of atopic dermatitis.

Modality	Acute Treatment	Chronic Treatment
Oclacitinib	✓	✓
Lokivetmab	✓	✓
Glucocorticoids	✓	
Cyclosporine		✓
Immunotherapy		✓
Bathing & Topical Therapy	✓	✓
Omega-3 Fatty Acids		✓
Antihistamines	?	?

Table 1: Appropriateness of various therapeutic modalities for the acute and chronic management of canine atopic dermatitis



Comments:

Atopic dermatitis is a chronic lifelong inflammatory disorder which cannot be cured, but can be safely controlled long term with appropriate vigilance. While most cases can be satisfactorily managed with the treatments mentioned here, it is often worthwhile to involve a veterinary dermatologist early in the process, especially if a pet is not responding to treatment as anticipated, and before owners become emotionally and financially exhausted.

Recommended Reading

Cosgrove, S; Wren, JA; Cleaver, DM; et al: A blinded, randomized, placebo-controlled trial of the efficacy and safety of the Janus kinase inhibitor oclacitinib (Apoquel®) in client-owned dogs with atopic dermatitis. *Vet Dermatol*, 2013; 24(6):587-e142.

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