

## Canine Atopy (allergic inhalant dermatitis)

### Features

Canine atopy is a hypersensitivity reaction to inhaled or cutaneously absorbed environmental antigens (allergens) in genetically predisposed individuals. It is common in dogs, with age of onset ranging from 6 months to 6 years. However, in most atopic dogs, symptoms first appear at between 1 and 3 years of age.

Symptoms begin as skin erythema and pruritus (licking, chewing, scratching, rubbing), which may be seasonal or nonseasonal, depending on the offending allergen. The distribution of the pruritus usually involves the feet, flanks, groin, axillae, face, and ears. Self-trauma often results in secondary skin lesions, including salivary staining, alopecia, excoriations, scales, crusts, hyperpigmentation, and lichenification. Secondary pyoderma, *Malassezia* dermatitis, and otitis externa are common. Chronic acral lick dermatitis, recurrent pyotraumatic dermatitis, conjunctivitis, hyperhidrosis (sweating), and, rarely, allergic bronchitis or rhinitis may be seen.

### Top Differentials

Differentials include other hypersensitivities (food, flea bite, contact), parasites (scabies, cheyletiellosis, pediculosis), folliculitis (bacteria, dermatophyte, *Demodex*), and *Malassezia* dermatitis.

### Diagnosis

1. History and clinical findings, rule out other differentials
2. Allergy testing (intradermal, serologic): allergy testing can be highly variable according to the method used. Positive reactions to grass, weed, tree, mold, insect, dander, or indoor environmental allergens are seen. False-negative and false-positive reactions may occur. Some dogs have positive reactions to storage mite antigens, which may be clinically relevant, or they may exhibit cross-reactivity with other insects. Storage mites are ubiquitous, and their clinical significance is currently unknown.
3. Dermatohistopathology (nondiagnostic): superficial perivascular dermatitis that may be spongiotic or hyperplastic. Inflammatory cells are predominantly lymphocytes and histocytes. Eosinophils are uncommon. Neutrophils or plasma cells suggest secondary infection.

### Treatment and Prognosis

1. Any secondary pyoderma, otitis externa, and *Malassezia* dermatitis should be treated with appropriate therapies. Controlling secondary infection is an essential component of managing atopic dogs.
2. Exposure to offending allergens should be reduced, if possible, by their removal from the environment. High-efficiency particulate (HEPA) air and charcoal filters should be used to reduce pollens, molds, and dust in the home. For house dust mite-sensitive dogs, household treatments for carpets, mattresses, and upholstery with the acaricide benzyl benzoate once a month for approximately 3 months, then every 3 months thereafter, may effectively eliminate house dust mites from the environment. Old dog beds should be discarded as these accumulate house dust mite antigens. Dehumidifying the house to below 40% relative humidity decreases house dust mite, mold, and flea antigen loads. To achieve this, high-efficiency dehumidifiers that are capable of pulling several liters of water from the air per day are required.
3. A flea control program should be instituted to prevent flea bites from aggravating the pruritus.
4. Pruritus should be controlled with topical therapy and systemic therapies such as antihistamines, essential fatty acid supplements, glucocorticoids, cyclosporine, or immunotherapy (see Numbers 5 through 14 below).
5. Topical therapy with shampoos, conditioners, and sprays (i.e., those containing oatmeal, pramoxine, aloe vera, antihistamines, or glucocorticoids) applied every 2 to 7 days or as needed may help reduce clinical symptoms.
6. Systemic antihistamine therapy reduces clinical symptoms in many cases (Table 7-1). Antihistamines can be used alone or in combination with glucocorticoids or essential fatty acids for a synergistic effect. One- to two-week long therapeutic trials with different antihistamines may be required to determine which is most effective.
7. Oral essential fatty acid supplements (180 mg EPA/10 lb) help control pruritus in 20% to 50% of cases, but 8 to 12 weeks of therapy may be needed before beneficial effects are seen. Also, a synergistic effect is often noted when essential fatty acid supplements are administered in combination with glucocorticoids or antihistamines.