CHAPTER | 7

Hypersensitivity Disorders

- Canine Atopy (Atopic Dermatitis, Environmental, Pollen Allergies)
- Canine Food Hypersensitivity
- Acral Lick Dermatitis (Lick Granuloma)
- Flea Allergy Dermatitis (Flea Bite Hypersensitivity)
- Feline Atopy
- Feline Food Hypersensitivity
- Mosquito Bite Hypersensitivity
- Feline Eosinophilic Plaque
- Feline Eosinophilic Granuloma (Linear Granuloma)
- Indolent Ulcer (Rodent Ulcer, Eosinophilic Ulcer)
- Feline Plasma Cell Pododermatitis
- Feline Idiopathic Ulcerative Dermatosis
- Urticaria and Angioedema (Hives)
- Canine Eosinophilic Furunculosis of the Face
- Contact Dermatitis (Allergic Contact Dermatitis)

AUTHOR'S NOTE

Treating Allergic Dogs

By far the most common skin disorders that we treat are allergies with the secondary infections and chronic skin and ear changes caused by those allergies. Despite many attempts to simplify the diagnostic and treatment process as well as the development of amazingly beneficial new therapies, we continue to struggle to find easy, practical, and economical strategies for the diagnosis and treatment of the primary allergic conditions and the secondary infections. What follows are the author's best ideas, tips, and perspective for the effective management of allergic dogs.

Optimizing Owner Understanding and Compliance

Much of the problem veterinarians face when treating the allergic patient is the pet owner's lack of understanding and ability to adhere to long-term prevention and treatment protocols. There is great information available regarding cognitive psychology that can optimize human factors improving successful outcomes. Here are some suggestions:

1. Have the pet owner complete a patient history form. This allows the client to focus on the details of the skin disease and symptoms and primes him or her to listen better and accept the diagnosis and information that will be provided by the health care team.
2. Try to avoid a rambling, stream-of-consciousness approach to the discussion of allergy. Many of us have an "automatic" allergy spiel that only confuses the client and does not focus on the specific problems of the individual patient.
3. Use simplified charts and handouts to organize the diagnosis and treatment phases of the allergy education discussion. These focus the educational message and improve the client's understanding (see Chapter 1). Additionally, draw and write on these handouts for the client to review later. This increases acceptance of the message and improves compliance with therapy.
4. Organize the diagnostic testing and treatment options into groups based on the severity of the patient's signs and response to previous treatments (mild patients need a, b, and c: moderately severe patients need d, e, and f: severe patients need g, h, and i).
5. Assess the risk to the patient and family members for methicillin-resistant *Staphylococcus* (MRS) infections. Families at risk for MRS contagion and zoonosis *must* be willing to accept aggressive medical management to reduce the risk. All three species of MRS can potentially be transmitted from dogs to people and from people to dogs. If family members have a history of methicillin-resistant *Staphylococcus aureus* (MRS), consider aggressively monitoring the patient with cultures because dogs can acquire MRS from humans. If family members are immunosuppressed, monitor the patient for methicillin-resistant *Staphylococcus pseudintermedius* and methicillin-resistant *Staphylococcus schleiferi*, which can be a source of contagious infection to at-risk, immunosuppressed people. These patients need the most aggressive diagnostic workup and treatments achievable to protect the entire family from contagion and zoonosis. In these families, avoid the indiscriminate use of steroids or fluoroquinolone

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antibiotics, which can increase the risk of MRS pyoderma in favor of antiseptic topical treatments or culture-based systemic antibiotics (or both).

Treating the Infection

Although dermatologists have been teaching and stressing the necessity and importance of treating secondary bacterial and yeast infections caused by the primary allergic skin disease, the failure to identify, diagnose, successfully treat, and then prevent the bacterial and yeast infections remains the most significant factor needing improvement. In recent years, the practice of bypassing the identification and treatment of the primary underlying disease or inappropriately treating the secondary pyoderma has led to the emergence and increasing trend towards resistant infections. These infections in particular are quickly becoming a major contagious-zoonotic concern leading to ethical and legal ramifications associated with malpractice.

1. The risk of MRS contagion and family immunosuppression must be assessed, discussed, and proactively managed to limit the transfer of resistant infection, genes, or both between pet and human family members.
2. Cytology must be incorporated into every dermatology examination as part of the minimum database for skin disease assessment. This simple test allows for the cytologic diagnosis of infection (bacteria, yeast, or both).
3. Culture the skin when the history is suggestive of a resistant bacterial infection (see Chapter 3).
4. Treatments targeting the primary, underlying allergic cause of the infections must be initiated to reduce the recurrence of the infection and the repeated use of chronic antibiotics.

Stopping the Itch

Despite the all-important medical issues, the client mainly wants the itch to stop. Our obsession with the treatment of this single symptom has led to an unhealthy tunnel vision focus on itch to the exclusion of the real problem, the secondary infections caused by the primary underlying allergic disease.

Regardless, there are only four ways to stop severe itch quickly:

1. For suspected or known atopic dogs, Canine Atopic Dermatitis Immunotherapeutic (Zoetis) is an injectable caninized monoclonal antibody that blocks the pruritogenic effects of IL-31. This injection is highly effective at reducing pruritic atopic symptoms with minimal adverse effects at the time of this writing.
2. Sedate the patient. This sounds unusual, but high-dose diphenhydramine, gabapentin, and/or tramadol will help alleviate the severe itching. Obviously, this is not a practical long-term solution.
3. A tapering course of oral steroids may be administered at anti-inflammatory doses (e.g., prednisone 0.5–1.0 mg/kg) for 1 to 2 weeks, but because of the risk of MRS, diabetes, and iatrogenic Cushing's disease, long-term use should be avoided.
4. Oclacitinib (Apoquel) may be administered on a short-term basis to reduce the sensation of itch, but long-term use should be avoided because of an increased risk of adverse events, including tumors (18%), pyoderma (12%), otitis (9.9%), vomiting (9.2%), diarrhea (6%), cystitis (3.5%), anorexia (3.2%), lethargy (2.8%), yeast skin infections (2.5%), and pododermatitis (2.5%).

Preventing Allergies

The best solution is to use simple over-the-counter (OTC) treatment options, when available, to help prevent the allergy and secondary infections. These treatment options should be the backbone of any allergy therapy protocol. The principle of combination anesthesia is to use multiple drugs at reduced dosages and with different mechanisms of action to achieve a plane of desired anesthesia and analgesia. This approach reduces the risk of adverse events compared with using a single drug at a higher dose to accomplish the same desired effect. Similarly, treatment of allergic skin disease should follow the same logic—the use of multiple therapies that target different aspects of the pathophysiology (e.g., skin barrier therapy, immunomodulation, and antimicrobials). A *regimen* of therapy that the patient will tolerate and the owner will administer will provide the best results.

1. Bathe the pet every 3 to 7 days with a disinfecting and antiseptic shampoo to wash off pollens and kill bacteria and yeast.
2. Place ear cleaner or medicine in the ear canal after every bath (every 3–7 days) to prevent allergic otitis from progressing to infectious otitis.
3. Wipe off the feet, chin, and face folds with wipes as often as possible to remove pollen, bacteria, and yeast. This is especially helpful right before bedtime because pruritus escalates during times of less environmental stimuli.
4. The routine use of antihistamines may help reduce skin irritation and have few side effects.
5. Give essential fatty acids every 12 to 24 hours to decrease the inflammatory properties (omega-3) of the allergic process and improve the barrier of the skin (omega-6).
6. For young allergic dogs, administration of nonflavored h probiotic once each day may help delay or prevent the full effect of allergies.
7. Make sure *all* pets and animals are treated with a *new*-generation total internal and external parasite control therapy to prevent parasitic pruritic flares.

AUTHOR'S NOTE—*cont'd*

8. Avoid common food allergens if possible. Feed a diet without beef, dairy, or chicken protein.
9. Keep pets indoors during the dawn and dusk time periods when pollens and insects are at their peak.

Advanced Allergy Treatment

When the relative simple and easy prevention therapies are insufficient, the patient should be treated with more advanced allergy treatments.

1. Consider a home-cooked food trial to avoid any and all preservatives, dyes, and contamination in commercially prepared foods.
2. Cyclosporine (Atopica) and allergy vaccines (immunotherapy) are the only effective, safe treatments that have a documented rate of disease remission for allergic patients over the long haul. Again, oral steroids and oclacitinib (Apoquel) are best suited for stopping acute pruritic flares.
   - Cyclosporine (Atopica) has reported adverse events with use including vomiting (26%), soft stool (15%), anorexia (2%), nodules or cysts (1%), urinary tract infection (UTI) (1%), gingival hyperplasia (1%), lethargy (1%), reproductive issues (1%), papillomatosis (1%), lymphadenopathy (0.8%), neurologic (0.8%), and urticaria or angioedema (0.3%).
3. For known atopic dogs, Canine Atopic Dermatitis Immunotherapeutic (Zoetis) is an injectable canized monoclonal antibody that blocks the pruritogenic effects of IL-31. This monthly injection is highly effective at reducing pruritic atopic symptoms with minimal adverse effects at the time of this writing.
4. Referral to a veterinary dermatologist for verification of the diagnosis and advanced medical management.

Salvage Therapy for Severe Refectory Patients

Rarely, allergic patients fail to respond to the aforementioned therapy, thus requiring chronic treatment with steroids or oclacitinib (Apoquel) for humane reasons. However, using these medications may have serious and significant adverse effects when used long term. These treatments should only be used over extended time periods after a complete and thorough discussion about their negative consequences has been had with the pet owner.

1. Oral steroids may be administered at the lowest possible dose and frequency to control the pruritus. Frequent or extended use will likely result in the development of adverse medical outcomes, including, but not limited to, MRS infection, iatrogenic Cushing's disease, demodicosis, calcinosis cutis, diabetes, UTIs, ruptured cruciate ligaments, and so on.
2. Oclacitinib (Apoquel) may be administered at the lowest possible dose and frequency. Higher dosing and frequent administration increase the risk of adverse events, including tumors (18%), pyoderma (12%), otitis (9.9%), vomiting (9.2%), diarrhea (6%), cystitis (3.5%), anorexia (3.2%), lethargy (2.8%), yeast skin infections (2.5%), and pododermatitis (2.5%).

Overall Goals of Allergy Management

- Reduce 80% to 90% of the itch about 80% to 90% of the time.
- Reduce the frequency of skin and ear infections.
- Limit the use of repeated courses of antimicrobials.
- Limit adverse events associated with allergy management treatments and strategies.
- Improve the patient and owner's quality of life within a defined budget.

Canine Atopy (Atopic Dermatitis, Environmental, Pollen Allergies)

Features

Canine atopy is a hypersensitivity reaction to inhaled (possibly a historical theory) or cutaneously absorbed environmental antigens (allergens) in genetically predisposed individuals. It is common in dogs, with the 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 food allergy, scabies, *Malassezia* dermatitis, and bacterial pyoderma, as well as other hypersensitivities (flea bite, contact), parasites (cheyletiellosis, pediculosis), and folliculitis (dermatophyte, *Demodex*).

Diagnosis

1. Seasonal foot licking is the most unique and typical symptom of atopy. If year-round allergens (house dust mites) are causing the allergy, the foot licking may be nonseasonal.