



FELINE DERMATOLOGY

Cats Are Not Small Dogs

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A cat's job in life is to question all the rules and make us—veterinarians and pet owners—scratch our heads and puzzle over why they are acting a certain way or doing the things they do.

It's not unusual for cats to bring a slight grin to our faces when we realize, yet once again, they have led us on a convoluted diagnostic pathway until we finally reach the diagnosis. How many owners come into your clinic with a bald cat and the opening statement, "I never see Mr. Meow itching or licking—I just come home from work and he's lost more hair!"

The goal of this article is to provide tools to use in everyday practice, specific disease components to recognize, and tips to help identify the right diagnosis when we are faced with feline dermatologic challenges.

EVALUATION BASED ON FELINE PRURITUS

Clinical signs of pruritus in cats are obvious:

- Scratching of the face, head, and ears with the hind claws to the point of self-trauma
- Visible evidence of dermatitis or inflammation, such as papules, crusts, erosions, erythema, and scaling.

But what about cats whose only clinical evidence is alopecia, and whose owners never witness them grooming? For these cats, the best plan is to approach the case similarly to the way you would approach a case of feline pruritus, even if the pruritus itself is not the primary presenting complaint.

Categories of Causes

In many feline pruritus cases, the causes can be broken down into a few categories. If you evaluate the patient based on these categories, a diagnosis can be made greater than 90% of the time.

- **Parasites:** Fleas; *Otodectes*, *Cheyletiella*, *Notoedres*, and *Demodex gatoi* mites; chiggers (Trombiculidae family of mites); and lice
- **Allergy:** Food, atopy, insect hypersensitivity (most notably flea and mosquito bite hypersensitivity), contact, and lesions suggestive of eosinophilic granuloma complex
- **Infections:** Dermatophyte, *Malassezia*, bacterial, and viral (herpes viral dermatitis)
- **Other:** Neoplasia (T-cell lymphoma, thymoma), hyperthyroidism, drug eruption, and pemphigus foliaceus



Figure 1. Buster, a 14-year-old neutered male domestic short-hair, with a 4-month history of intense pruritus. Buster was 1 of 9 cats in the household. Five months prior to presentation, a new cat from a shelter had been introduced into the home. See **Figure 2** for diagnosis.

Feline eosinophilic granuloma complex (EGC)

is a dermatologic term used to describe a reaction pattern in cats—clinical and histologic lesions suggestive of underlying allergic skin disease. EGC consists of indolent ulcers (rodent ulcers), eosinophilic plaques, or eosinophilic granulomas.

Psychogenic Alopecia

Psychogenic alopecia is frequently misdiagnosed because the diagnosis is based solely on the clinical appearance of the cat (symmetrical alopecia with no visible signs of erythema, papules, pustules, or scale). However, remember that excessive grooming is more often a result of pruritus than an obsessive-compulsive disorder.

In a recent study, 21 adult cats with a presumptive diagnosis of psychogenic alopecia were referred to a behavioral service.¹ In 19 cats, a cause of pruritus was identified: adverse food reaction was the most common cause, followed by parasitism, flea allergy dermatitis, atopy, and hyperthyroidism.

Therefore, psychogenic alopecia is a diagnosis of exclusion, which should only be considered after all other causes of pruritus have been eliminated.

TABLE 1. TREATING PARASITES IN CATS

PARASITE	PRODUCT	TREATMENT PERIOD
<i>Cheyletiella</i> & <i>Notoedres</i> mites	<ul style="list-style-type: none"> • Imidacloprid/moxidectin (Advantage Multi, bayerdvm.com) • Selamectin (Revolution, zoetis.com) 	Every 2 weeks for 3 treatments*
<i>Demodex gatoi</i> mites	• Lime sulfur dip (4 oz:1 gallon)	Once weekly for 4–6 weeks
	• Imidacloprid/moxidectin (Advantage Multi, bayerdvm.com)	Every 2 weeks for 3–4 months ²
Fleas	<ul style="list-style-type: none"> • Fipronil (EasySpot, ah.novartis.com) • Fipronil/(S)-methoprene (Frontline Plus, merial.com) • Imidacloprid/moxidectin (Advantage Multi, bayerdvm.com) • Indoxacarb (Activyl, merck-animal-health-usa.com) • Selamectin (Revolution, zoetis.com) 	Every 2 weeks for 3 treatments*
	<ul style="list-style-type: none"> • Spinosad (Comfortis, elanco.com) • Spinetoram (Cheristin, elanco.com) 	Once monthly or every 4 weeks
Lice	<ul style="list-style-type: none"> • Fipronil (EasySpot, ah.novartis.com) • Fipronil/(S)-methoprene (Frontline Plus, merial.com) 	Every 2 weeks for 3 treatments*
<i>Otodectes</i> mites	<ul style="list-style-type: none"> • Imidacloprid/moxidectin (Advantage Multi, bayerdvm.com) • Selamectin (Revolution, zoetis.com) 	Every 2 weeks for 3 treatments*

*Applying these products at the treatment intervals recommended above is considered off-label use.

DIAGNOSTIC APPROACH TO PRURITIC CATS

History & Causes

- **Age of onset:** If the patient is less than 6 months old at onset of clinical signs, parasite hypersensitivity and dermatophytosis are the most likely causes. In geriatric cats, typical causes are hyperthyroidism, T-cell lymphoma, and thymoma.
- **Seasonal components:** If there is a strong seasonal relationship with extended periods of normalcy, consider atopy, flea allergy dermatitis, or insect bite hypersensitivity. Remember, though, that atopy can be non-seasonal, with year-round clinical signs present.
- **Lifestyle factors:** Variables, such as recently introduced animals in the home (**Figure 1**), access to the outdoors, travel, and house guests, put cats at increased risk for contagious causes of pruritus.
- **Response to corticosteroids:** In general, atopy is considered highly responsive to steroids, while food allergy is less responsive. Many ectoparasitic causes of pruritus are minimally responsive to corticosteroid therapy. However, there will be exceptions to these typical findings.

Initial Diagnostics

Begin with diagnostic tests that will rule out both external and internal parasites and, thus, decrease the need for other tests (**Figure 2**):

1. Combing (fleas, lice, and *Cheyletiella* mites)
2. Ear swabs (*Otodectes* mites)
3. Acetate tape preps (*Cheyletiella* mites)
4. Skin scrapings (*Demodex gatoi*, *Cheyletiella*, and *Notoedres* mites)
5. Fecal examination via centrifugation (*Demodex gatoi* mites)
6. Fungal culture (dermatophyte test medium) and Wood's lamp examination (dermatophytosis).

Superficial skin scrapings are needed for the identification of *Demodex gatoi*, *Cheyletiella*, and *Notoedres* mites because these mites reside on the surface or superficial layers of the skin. *Cheyletiella* mites, also referred to as “walking dandruff,” can also be found via a good flea comb or acetate tape prep.

Parasite Vacation

A parasite “vacation” is recommended for all pruritic or alopecic cats, even those that are not perceived as pruritic by their owners. Remind owners that the absence of parasites during initial examination and diagnostics does not eliminate them from the differential list. See **Table 1** for a list of products to use for parasite elimination.

Dietary Trials

A strict dietary elimination trial for cats consists of providing a novel protein, hydrolyzed protein, or home-cooked diet *exclusively* for 10 to 12 weeks. Educate the owner to:

- **Isolate the patient** during feeding time if other animals reside in the household
- **Change food dishes** from plastic to ceramic, glass, or stainless steel, which is my preference due to the potential for hypersensitivity to plastic.
- Remove **other food dishes** after feeding to prevent the patient from licking a dish that may contain offending protein(s).
- **Discontinue the following items** during the trial: cat

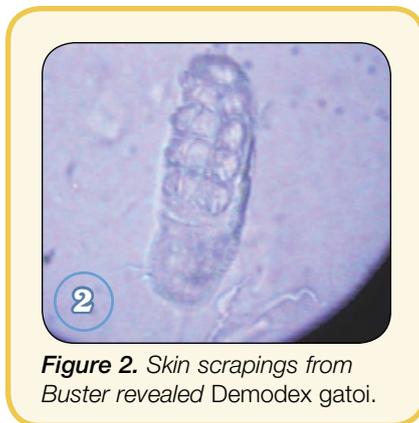


Figure 2. Skin scrapings from Buster revealed *Demodex gatoi*.

grass, catnip, flavored flea prevention, hairball supplements, treats (including dental treats), and omega-3 fatty acids (fish is a common dietary protein in cat foods).

Make the owner aware that the potential for hepatic lipidosis exists in “picky eater” cats:

- Advise the owner to mix small amounts of new diet into the previous food, gradually increasing the amount over a 4- to 7-day time frame.
- If the cat consistently eats the previous food, leaving the elimination diet, a different diet will need to be chosen.

Food trials are not truly complete until the cat has been challenged with the previous food and the clinical signs recur. However, some owners will be resistant to discontinuing the new diet if the cat’s clinical signs have resolved.

The Challenges of Home-Cooked Diets

A home-cooked diet composed of a single protein source and a single carbohydrate source is still considered the “gold standard” of dietary trials. Home-cooked diets limit the chance of contamination with other proteins or additives.

However, there are several factors that make home-cooked diets less than desirable:

- These diets require considerable effort on the part of the owner.
- Novel protein sources, such as elk, venison, kangaroo, rabbit, and horse, can be difficult to purchase in large quantities on a reliable basis, and these specialty meats can be expensive.
- Feeding cats an unbalanced diet, especially with regard to taurine, is a concern, even for a limited amount of time.

For these reasons, I prefer to use a prescription novel protein or hydrolyzed protein diet during the dietary trial.

Atopy/Allergen Testing

It is important to realize that neither intradermal skin testing nor IgE serology is used to diagnose atopy. Rather, diagnosis is determined by clinical history and ruling out other causes of pruritus.

Specific allergen testing identifies environmental allergens that are best suited for inclusion in allergen-specific immunotherapy (ASIT) injections. The goal of hyposensitization is to, over time, decrease the severity of hypersensitivity reactions to specific environmental allergens (Figures 3 through 5).

It is important for pet owners to understand that ASIT does not:

1. Immediately relieve pruritus
2. Eliminate all manifestations of atopy.

Cats Are Not Dogs

Some of the symptomatic therapies used in dogs, such as frequent cool water baths, menthol, and witch hazel sprays, are not well tolerated by their feline counterparts. In addition, prolonged use of topical corticosteroids, such as betamethasone, triamcinolone, and dexamethasone, can lead to severe adverse effects, including permanent skin thinning and fragility.

THERAPEUTIC APPROACH TO PRURITIC CATS

Therapy for pruritic cats is aimed at:

- Identifying and managing the primary cause of the pruritus
 - Providing temporary relief of clinical signs.
- “Symptomatic” therapies range from use of omega-3 fatty acids and antihistamines to corticosteroids and cyclosporine.

Antihistamines

Antihistamines alone may be useful for mild pruritus (particularly atopy), but are most useful as part of combination therapy, such as use with fatty acids, to reduce



Figure 3. Brandi, 3-year-old spayed female domestic shorthair, with a 6 month history of persistent head and neck pruritus. There was no improvement in pruritus after parasite control and 10-week dietary elimination trial.

Figure 4. Intradermal skin test performed on Brandi.

Figure 5. Brandi’s neck 3 months after initiation of antigen-specific immunotherapy.

the amount of corticosteroid required.

As in humans, failure to respond to one antihistamine does not mean the patient will not respond to another one. It may be necessary to formulate an antihistamine trial, in which the owner tries different antihistamines for 2 weeks each in order to find one that may provide some relief.

Antihistamines are quite safe with minimal side effects. However, although rare, there are documented cases of urinary retention in cats receiving antihistamines.^{3,4} Caution is warranted when administering antihistamines to cats with a history of urinary tract disease.

See **Table 2** for antihistamine dosages for cats.

Corticosteroids

Corticosteroids are often the most effective method of providing immediate relief from pruritic signs. *The key is to use the least amount needed to provide relief for the shortest period of time.* Long-term corticosteroid use can have significant adverse effects in cats, including increased risk for diabetes and cutaneous skin fragility syndrome.⁵

Cats lack the enzymes to consistently convert prednisone to its metabolically active form, prednisolone. Therefore, always use prednisolone or methylprednisolone, specifically, in cats. Although oral triamcinolone and dexamethasone are acceptable for short-term use in cats, a recent study supports that dexamethasone had higher diabetogenic effects compared to prednisolone.⁶

Cyclosporine

Microemulsified cyclosporine (7 mg/kg/day) provides an alternative to corticosteroids for cats that require long-term symptomatic management of pruritus. Cyclosporine has multiple mechanisms of action, ranging from inhibiting T-cell activation; histamine release; cytokine production; and eosinophil migration, survival, and degranulation.

Although cyclosporine has not been rigorously evaluated for long-term use in cats for the treatment of allergic skin disease, it appears to be a safe and attractive option for owners who:

1. Want to avoid the long-term side effects of corticosteroids
2. Do not want to pursue ASIT.

Cyclosporine therapy has also become a more attractive option for owners due to the introduction of feline Atopica (ah.novartis.us). The liquid formulation provides ease of administration and flexibility in dosing, and it may be administered with food.

Because fatal systemic toxoplasmosis has been reported,⁷ avoid cyclosporine use in cats with high risk for toxoplasmosis (eg, cats that hunt). Contraindications for use include demodicosis, neoplasia, dermatophytosis, and systemic fungal infection.

KEY POINTS ON IMMUNOTHERAPY

Immunotherapy, also referred to as *hyposensitization therapy* or *allergy vaccine*, refers to a mix of allergens administered via subcutaneous injection or sublingual drops, in progressively increasing doses.

- **The formulation of allergens** is based on the results of either intradermal skin testing or serologic testing in combination with the cat's history, including seasonal flares.
- **ASIT's exact mechanism** is unknown; most hypotheses suggest that modulation of the immune system by introducing proteins identified by testing as allergens (in dilute, yet increasing amounts) results in development of tolerance and, thus, eventual decrease in clinical signs.
- **Time required to see a response** to ASIT varies between individual patients: Some cats show a positive response in a few months, whereas others require several months. In general, owners are advised to continue ASIT for a full year before completely assessing benefits of therapy.
- **Follow-up, client education, and compliance** are critical to achieving maximum success. Owners should be taught to recognize patterns and levels of pruritus, as well as adverse reactions.
- **Adverse reactions** are typically mild and uncommon, but can include intensification of clinical signs for a few hours or days post injection, local reactions at the injection site, or rarely, anaphylaxis.
- **Escalation in pruritus** may indicate that the atopic cat has reached its maximum tolerance dose of antigen.

TABLE 2. ANTIHISTAMINE DOSAGES FOR CATS

ANTIHISTAMINE	RECOMMENDED DOSAGE FOR CATS
Amitriptyline (Elavil, astrazeneca.com)*	5–10 mg/cat PO Q 24 H
Cetirizine (Zyrtec, mcneil-consumer.com)	5 mg/cat PO Q 12–24 H
Chlorpheniramine (Chlor-Trimeton, merck.com)	2–4 mg/cat PO Q 12 H
Clemastine (Tavist, us.novartis.com)	0.34–0.68 mg/cat PO Q 12 H
Cyproheptadine (Periactin, merck.com)	2 mg/cat PO Q 12 H
Diphenhydramine (Benadryl, mcneil-consumer.com)	0.5 mg/kg PO Q 12 H
Doxepin*	0.5–1 mg/kg Q 12–24 H
Fexofenadine (Allegra, sanofi.us)	10 mg/cat PO Q 12 H
Fluoxetine (Prozac, lilly.com)*	1 mg/kg PO Q 24 H
Hydroxyzine	1–2 mg/kg Q 12 H
Loratadine (Claritin, merck.com)	5 mg/cat PO Q 24 H

*Behavior modifying, psychotropic agents with antihistamine properties

| DERMATOLOGY DETAILS

Allergen-Specific Immunotherapy

As stated earlier, the goals of ASIT are to:

- Modulate the immune response to allergens
- Decrease the severity of hypersensitivity reactions.

Hyposensitization provides a safe option for long-term treatment of atopy in cats, with response rates ranging as high as 70% to 80% in this species.⁸

IN SUMMARY

Identifying the underlying cause of pruritus via a thorough history, recognition of clinical signs, and appropriate diagnostics is crucial to implementing a successful long-term treatment regimen for the feline patient.

Successful management of an atopic cat often requires a multimodal approach: Some therapies are long-term (ASIT), while others are used to treat acute flare-ups (glucocorticoids) or address secondary bacterial or superficial fungal infections. Systemic therapy is often combined with topical therapy for the best outcome. ■

ASIT = allergen-specific immunotherapy; EGC = eosinophilic granuloma complex

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