

Allergies in Cats

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Cats develop a number of interesting skin syndromes that are unique; the 3 top syndromes include miliary dermatitis, eosinophilic granuloma complex, and hair pulling/overgrooming. It is important to realize that these are, in fact, syndromes and not specific diagnoses. Finding the underlying cause is critical to successful management. Some cats will have 2 or 3 of these syndromes at the same time, and many times allergies are the culprit. Allergic cats, like allergic dogs, benefit from early diagnosis. Allergy testing and immunotherapy are recommended when environmental allergies are involved. We know much less about the pathogenesis of allergies in

Hair pulling / overgrooming

Overgrooming is one of the most frustrating feline skin disorders with which we deal. For many years, cats which plucked out their own hair were considered neurotic and were given a diagnosis of psychogenic alopecia. These cats were treated with a variety of psychoactive drugs, which either failed to stop the overgrooming or worked only temporarily. Steve Waisglass, a veterinary dermatologist, partnered with Gary Landsberg, a veterinary behaviorist, to study cats with self-induced alopecia. Out of 21 cats, only 2 (10%) were found to have true psychogenic alopecia with no associated medical condition. The other 19 cats had flea allergy, food allergy, atopy, or infectious inflammatory skin disease. Interestingly, 6 out of the 21 cats had no significant histologic findings, but 4 out those 6 still had food allergy and/or atopy. This paper was very instructive because it documented the fact that psychogenic alopecia was not as common as previously thought. It also documented the fact that cats can have allergic skin disease without having obvious inflammation in their biopsies. A diagnosis of psychogenic alopecia should therefore only be made after inflammatory and/or pruritic skin conditions are ruled out.

When we see a cat with hair loss, we should first determine if the cat is removing the hair itself or if the hair is falling out. Cats who lick or chew their hair out often have short stubbles remaining at the site; plucked hairs examined under the microscope will show broken ends. Some of these cats will have a history of vomiting hairballs. What we must not rely on is the owner telling us whether the cat is removing the hair. Many overgrooming cats will not do so in front of their owners, so we need to rely on our exam findings. By contrast, cats who spontaneously lose hair will have a very smooth skin and hairs that epilate extremely easily. Often the skin takes on a shiny appearance. If these findings are seen, we recommend immediate biopsy as we are concerned about the possibility of paraneoplastic alopecia.

The two major causes of self-induced alopecia in cats include flea allergy dermatitis and demodicosis caused by the surface mite, *D. gatoi*. To convince some owners of the viability of flea allergy as a diagnosis may require the persuasive skills of a snake oil salesman. Many owners believe that their indoor cats will never get fleas, and many owners believe that if they don't see fleas, their cats don't have them. As we know, indoor cats can and do get fleas. They come into the home on their owners as well as dogs and any outdoor cats. Not seeing fleas in flea allergic pets is quite common. Fleas are laterally compressed insects that are quite small and move quickly. In addition, it has been demonstrated quite clearly that animals with flea allergy will actively remove fleas and routinely have lower flea counts than animals without flea allergy. Probably the best diagnostic tool is the flea comb; it will help capture adult fleas as well as flea dirt. The first step in managing a cat with self-induced hair loss is to institute rigorous flea control. As a trial, Capstar can be given every 48 hours for a month. If the cat stops plucking, then the diagnosis is confirmed and regular flea control instituted. It is critical in many parts of the country that cats and dogs be treated with their flea control products AT LEAST every 30 days throughout the year. It is best to use a product with an insect growth regulator to attack multiple parts of the flea life cycle. Flea control is going to be more difficult for the outdoor cat, and in some cases, application twice weekly may be needed.

The second most common cause of self-induced alopecia, at least in the southeastern United States, is often demodicosis. *Demodex gatoi* is the short stubby-tailed mite that lives on the surface of the skin. Because of its superficial location, it appears to be contagious among cats. Broad and superficial skin scrapings can be taken to search for the mites, but as for canine scabies, negative skin scrapings do not rule out the disease. It may be possible to find mites more easily on asymptomatic housemates or by fecal exam. Some key historical and physical clues can be helpful. Cats with demodicosis often have a sudden onset of hair pulling, and they are poorly responsive to steroids. Disease may be seen after a new cat has been brought into the household, even though the newcomer may be asymptomatic. Housemates of the affected cat may or may not show clinical lesions, in spite of being infested. The hair loss is often first seen on the abdomen and medial thighs, but can progress to other areas. Ruling out the disease requires assessing response to treatment. The treatment of choice has been lime sulfur dips weekly for 6-8 weeks. Cats often show improvement after the 3rd or 4th dip. Lime sulfur resistance is seen in some parts of the country, however, making it difficult to rely on lime sulfur as a 100% efficacious treatment. An alternative treatment is the topical application of Advantage Multi (containing moxidectin). We have used it every 2 weeks for 3 months, then it can be continued every 30 days to provide good heartworm and

flea prevention. We have had one family of cats with resistance to moxidectin, and these cats did respond to lime sulfur. Failure to respond to both lime sulfur and avermectins has been reported, and these cats respond to ½ strength amitraz dip applied every 2 weeks. Some cats successfully treated for mites may remain somewhat itchy. These cats are later found to be positive on intradermal skin testing or serum allergy testing for environmental allergies, and they respond to allergen-specific immunotherapy. I hypothesize that perhaps these cats are symptomatic to *D. gatoi* because they are atopic, similar to what we see in atopic dogs that develop occult scabies. Not all cats with *Demodex gatoi* are symptomatic, so perhaps this mite is more common in the cat population than we previously thought.

If ectoparasites are ruled out, we can consider allergic dermatitis, caused by food allergy, atopy, or a combination of both. Feline food allergy can be difficult to diagnose, but some cats with hair pulling will respond to dietary manipulation. Ideally we pick a novel protein diet, but there are some special considerations to consider with cats. They often are more finicky than dogs, and we cannot starve them into submission. One effective strategy is to offer samples of several diets that the owner can offer to the cat. Once the cat makes its selection, we use that diet for 6-8 weeks. This is a diagnostic diet. If hair pulling is reduced, then we do food challenges to discover what the cat will be able to eat without developing itch. As hair pulling is one manifestation of itch in cats, we should also consider the possibility of atopy. We know much less about the pathogenesis of atopy in cats, but it is clear that cats do make IgE and that they have the immunologic equipment to become allergic. Unlike dogs, however, most cats do not show classic signs of atopic dermatitis. Either intradermal skin testing or serum allergy testing can be used to select allergens for immunotherapy, and while evidence is sparse to support efficacy, many of us believe that cats respond quickly and well. Intradermal skin testing, while always an art, becomes even more artful in cats! They have thin but tough skin, so placing intradermal injections correctly can be challenging. Furthermore, some cats have very subtle positive reactions that are transient in nature, requiring an experienced reader. By contrast, serum allergy testing is fairly straightforward and much easier on the cat. It is important to note that the purpose of allergy testing is not to make a diagnosis, but to select allergens for immunotherapy. Now immunotherapy is available for injection or for delivery under the tongue (sublingual immunotherapy) making allergen-specific therapy available to many animals. Immunotherapy is the only disease modifying treatment we have, and it has no long term side effects. Alternatives to immunotherapy are modified cyclosporine (Atopica) or long term steroids. All drugs have the potential for side effects. Cyclosporine can be very helpful in some cats, but efficacy may depend on the geographic area. We normally recommend using 5-7 mg/kg/day for 4-6 weeks, then we slowly taper to the lowest frequency that will control the disease. In Texas we find that many cats require daily cyclosporine to control their disease, and they still develop flares, which require the short term addition of steroids to their treatment regimen. Cyclosporine is expensive and is frequently associated with gastrointestinal side effects, which may or may not be severe enough to stop therapy. Cats, like dogs, can develop gingival hyperplasia. More severe side effects, such as fatal toxoplasmosis and fatal disseminated *Mycobacterium avium* disease have also been seen. Steroids can be used safely in many cats, but for a small number of cats, the potential for diabetes mellitus remains a concern. We generally use prednisolone or methylprednisolone, starting with 2 mg/kg/day and slowly tapering to the lowest alternate day dose that will control the disease. Occasionally other steroids such as triamcinolone or dexamethasone may be needed. Oclacitinib (Apoquel, Zoetis) has recently been released for the management of itch in allergic dogs; while not approved for use in cats, it is currently being used off-label for atopic diseases such as feline asthma and feline pruritic skin diseases.

Miliary dermatitis

Miliary dermatitis is characterized by multiple small crusted papules that are more easily palpated than seen. Miliary dermatitis has a number of potential underlying causes but many cats with miliary dermatitis have allergies. As for hair pulling, flea allergy is the most common, atopy is the second most common, and food allergy the 3rd. The nature of miliary dermatitis can make finding the underlying cause quite difficult at times. Bacterial folliculitis, dermatophytic folliculitis, ectoparasites such as cheyletiellosis and even pemphigus foliaceus can be considered as causes for miliary lesions. Based on statistics, we would recommend ruling out flea allergy first, then to consider other allergic processes. Bacterial folliculitis is less common in cats compared to dogs, but is important to consider. Cytologies can be very helpful in deciding whether antibiotics will be required. Yeast dermatitis (*Malassezia*) can complicate allergic disease of cats, and it definitely contributes to pruritus. Looking for yeast particularly around nailbeds can be helpful; as for dogs, we see a brownish discoloration to the proximal scale. That material can be scraped with a dull #10 blade and smeared on a slide for cytology. The basic approach to miliary dermatitis would be similar to that for hair pulling. We hope to rule out flea allergy first, then consider the possibilities of atopy and/or food allergy. In some cases, it may be wise to take skin biopsies to verify that we are, in fact, dealing with allergic disease. Biopsies will help us determine if we have bacterial folliculitis, dermatophytosis, or pemphigus foliaceus instead of allergic disease, and then we can go straight to the appropriate treatment without wasting time and money. Long term therapy for allergic miliary dermatitis will include excellent flea control, dietary avoidance when food-induced, and/or allergen specific immunotherapy when environmental allergies are involved. When indicated, good anti-staphylococcal antibiotics and/or fluconazole should be used. In addition, steroid therapy and/or cyclosporine therapy can be considered. Steroids are best used if quick relief of itch is needed, and for owners who prefer not to pursue a workup. Prednisolone

can be used at 2 mg/kg/day to start, with a taper to the lowest alternate day dose that will control the disease. Cyclosporine can be used at 5-7 mg/kg/day for 4-6 weeks, then reduced to the lowest frequency that will control the disease. For some cats, dosing can be reduced to 2-3 times a week; for other, daily therapy is required indefinitely.

Eosinophilic granuloma complex

Eosinophilic granuloma complex is a triad of diseases including indolent ulcer (found most often on the upper lip), eosinophilic plaque, and linear granuloma/eosinophilic granuloma. These diseases can be idiopathic, but more often are associated with underlying allergic processes. In general, our approach to these 3 manifestations is similar. It is sometimes hard to envision how an allergy could cause an indolent ulcer; however, a very interesting paper showed that indolent ulcer could be induced experimentally in cats following the induction of flea allergy. The hypothesis is that the continuing licking causes abrasion of the upper lips by the tongue. The lesions in these experimental cats waxed and waned as does the natural disease, and in some of the cats the lesions persisted until the flea exposure was stopped.

With indolent ulcers, it is always worthwhile making cytologies to see if bacteria are present. Brett Wildermuth showed that when bacteria were present, eosinophilic plaque, and to a lesser extent indolent ulcers, responded to antibiotic therapy. However, the underlying allergic disease needs to be addressed to prevent recurrence. As for hair pulling, flea allergy is ruled out first, and then the possibilities of atopy or food allergy considered. I have seen a few feline patients with eosinophilic granuloma of the feet respond to a change in litter, suggesting a contact dermatitis was the underlying cause. A subset of kittens will develop either indolent ulcer or eosinophilic granuloma that is transient in nature; therefore, aggressive diagnostics or therapeutics may not always be required.

To resolve the lesions of eosinophilic granuloma will often require medication. For most cats, steroid therapy is indicated and will result in rapid resolution of the lesions. In the past, we have advocated the use of methylprednisolone acetate injections (Depo-Medrol) every 2 weeks for 3 treatments, and this approach can be helpful. For many cats with atopic disease this approach will not necessarily be the best choice; it may be best to use oral steroids such as prednisolone, starting at 4 mg/kg/day with a slow taper to the lowest alternate day dose that controls the signs until allergen specific immunotherapy will work.

In spite of an extensive allergy workup, some cases of eosinophilic granuloma will remain idiopathic. In those patients, maintenance medication will be required for control of the lesions. For most cats, cyclosporine therapy may offer the best long term management with the fewest risks. We usually use cyclosporine at 5-7 mg/kg/day daily for at least 4-6 weeks. Then, if possible, the frequency can be reduced to the minimum that will control the disease. If the cat cannot tolerate cyclosporine, then a minimum maintenance dose of steroid can be used. For some cats prednisolone can become ineffective; in those cases a change in steroid to triamcinolone or dexamethasone can be helpful. In addition, there are anecdotal reports that doxycycline or chlorambucil can help some patients. In others, using intralesional triamcinolone can reduce lesions even when oral therapy with steroids has failed. Gold salt injections can also be used for refractory eosinophilic granuloma, when the injectable product is available.

Feline idiopathic ulcerative dermatosis

Feline idiopathic ulcerative dermatosis is a frustrating disorder that can result from a variety of potential underlying causes. It occurs as a pruritic ulcer, usually associated with crusting, between the shoulder blades. Lesions can also be seen on the dorsal neck and occasionally on other parts of the body as well. One hypothesized cause is an injection reaction, but not all cats who develop the lesion have received injections. Classically, the biopsies are characterized by epidermal necrosis, fibrosis under the epidermis, and neutrophilic infiltrates. However we have seen several of these patients with eosinophilic infiltrates as well.

My first step is to make a cytology to check for bacteria (cocci). Some of these patients will respond to a good anti-staphylococcal antibiotic, topical silver sulfadiazine, and clothing to prevent self trauma until the lesion has healed. If eosinophils are present, we will pursue an underlying allergy, to include flea allergy, environmental allergies, or food allergies. These cats may respond to oral steroids or cyclosporine. Other cats will be poorly responsive to steroids or cyclosporine, and these may respond to gabapentin. It has been recommended as well that surgical removal of the lesion may be curative for some cats.

Intense facial pruritus

Intense facial pruritus may occur as a single entity or in combination with hair pulling, military dermatitis, or eosinophilic granuloma on other parts of the body. We often believe that intense facial pruritus is an indication of food allergy, so we advocate for a strict dietary trial as one of our first diagnostic tools. It is always important to make cytologies of these lesions to check for bacteria and yeast. Intense pruritus can be associated with either infection. In the 21st century it is critical to keep in mind the possibility of methicillin resistant staphylococcal infection. Given the severity of this lesion, if the cat has a history of previous antibiotic therapy, a culture and sensitivity is recommended. Stopping the self trauma immediately is very important; it may be necessary to use an Elizabethan collar to prevent further trauma.

Idiopathic facial dermatitis of the Persian and Himalayan cat

Idiopathic facial dermatitis of the Persian and Himalayan cat (dirty face syndrome) is believed to have a genetic basis. These cats develop blackish waxy crusts that adhere to the hair primarily around facial folds; the lesions progress to erythema and alopecia, and can be pruritic. The lesions can extend from the facial folds onto the entire face, and sometimes lesions are found on other parts of the body. Some cats will also develop a submandibular lymphadenopathy. Often bacteria and yeast can be found on cytology. Typically treatment requires the use of systemic antibiotics and antifungal drugs, as well as some gentle topical therapy. Systemic cyclosporine or topical tacrolimus have been advocated. I have often wondered if this disease is a reaction pattern in these specific breeds to environmental allergies. The patients that I have seen have done well with allergen-specific immunotherapy and pulse fluconazole therapy.

References available upon request