

## Feline Dermatology. The Usual Suspects

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We all know that cats don't read the textbook! This species tends to have a much more varied presentation of skin disease compared to their canine counterparts. If cats are pruritic this can be manifested as scratching but it is more often obsessive licking that clients note. Compared with dogs, the pathogenesis of skin diseases in cats is not as well understood, however, there has been a resurgence in investigation for this species more recently.<sup>1</sup> During this lecture we will focus on the work-up for feline skin disease delving into some of the more common skin diseases in cats.

### Clinical Signs

Cats display several cutaneous reaction patterns, as listed below.

1. Miliary dermatitis
2. Symmetrical alopecia
3. Eosinophilic granuloma complex (eosinophilic plaques, granulomas and indolent ulcers)
4. Head and neck pruritus

None of these patterns are pathognomonic for a certain disease. Therefore a full diagnostic work-up is needed for the "derm" kitty. Each of these reactions patterns has their own differential diagnosis list, as shown below.<sup>2,3</sup> Diagnostic testing selected for each individual case should revolve around these differentials.

<b>Miliary dermatitis</b>	<b>Symmetrical alopecia</b>	<b>Eosinophilic granuloma complex</b>	<b>Head and neck pruritus</b>
Atopic Dermatitis	Atopic Dermatitis	Atopic Dermatitis	Atopic Dermatitis
Cutaneous adverse food reaction	Cutaneous adverse food reaction	Cutaneous adverse food reaction	Cutaneous adverse food reaction
Flea allergy dermatitis	Flea allergy dermatitis	Flea allergy dermatitis	Flea allergy dermatitis
Demodicosis	Demodicosis		Cutaneous adverse drug reaction
<i>Cheyletiella</i>	<i>Cheyletiella</i>		Idiopathic facial dermatitis of Persians and Himalayans
<i>Otodectes</i>	Endocrine		<i>Otodectes</i>
Lice	Paraneoplastic alopecia		Fungal disease (Cryptococcosis)
<i>Notoedres</i>	Psychogenic alopecia		Pemphigus foliaceus
Dermatophytosis	Dermatophytosis		
Insect bite hypersensitivity			
Pemphigus foliaceus			
Cutaneous adverse drug reaction			
Malassezia dermatitis			

Pruritus, from mild to severe, is typically present in cats with allergic dermatitis, whether due to food allergy, flea allergy, and/or feline atopic skin syndrome (environmental allergies).<sup>4</sup> Exceptions include indolent ulcers or eosinophilic granulomas, which can occur without pruritus.

## History

As with any dermatology case, gaining an accurate and thorough history is of paramount importance. When clients are asked if their cat is pruritic, often they will say no. Cats can be secretive with their over-grooming. When cats are over grooming, their families may note increased hairballs, hair in feces, hair between the teeth – a clinician should always ask if any of these have been seen and should exam the oral cavity (if possible) for hair between teeth. Cats may also bite and chew at affected regions of their body.

A good history can decrease the number of processes on your differential list, for example, if the patient is less than 6 months old at onset of clinical signs, parasitic dermatitis, cutaneous adverse food reaction and dermatophytosis should be higher on the differential list. In geriatric cats, cases of skin disease are more likely to be due to neoplasia or hyperthyroidism. Seasonality of pruritus may indicate a seasonal parasitic infestation, insect bite hypersensitivity or a seasonal allergy. In general, a patient who responds well to glucocorticoids is most likely to have environmental allergies. Changes in the household such as recent additions, guests, stays at boarding facilities etc may increase the suspicion for a contagious etiology to the skin disease.

A validated scoring method for feline pruritus has been published, providing the client with descriptions to allow scratching/licking etc to be ranked.<sup>5</sup> This should be used at the initial appointment and then at every recheck to allow interpretation of response to therapy.

## Dermatologic Exam

Cats should be examined from nose to toes to tail for any signs of dermatologic disease. Some common areas affected are the head and neck, ventral abdomen and along the limbs. The oral cavity should be examined for any granulomas or plaques on the tongue or hard palate. Otitis externa can occur in 20% of cats with feline atopic skin syndrome but is also noted in cats with cutaneous adverse food reaction, *Otodectes* and pemphigus foliaceus.<sup>1,6</sup> Evaluation of the pinnae and otoscopic examination of the ear canals is an integral part of the complete dermatologic examination. Nail beds are often affected with pemphigus, clinically apparent as a sterile paronychia. The head and concave pinnae are also commonly affected with this disease.<sup>6</sup> *Otodectes* infestation tends to be associated with clinical signs localized on the face, head and ears/pinnae.<sup>7</sup> *Cheyletiella* is more likely to affect the dorsum.<sup>8</sup> Conjunctivitis was reported in 4.8% of cats and digestive signs in 3.9% of cats with allergic skin disease, clinical signs of which may be documented during examination or history taking.<sup>4</sup>

## Diagnostic Work-up

Any pruritic cat should be assessed for ectoparasites via flea combing and skin scrapings. Due to the fastidious nature of cats grooming, there has been suggestion that demodicosis may be challenging to diagnose on scrapings alone. In situations where demodicosis is suspected, fecal floatation can be performed to look for mites in the feces after ingestion.<sup>9</sup>

Ear swabs should be taken to check for *Otodectes*. A cotton tipped applicator can be dipped in mineral oil to aid in sample collection and then debris rolled onto a slide with mineral oil applied. Skin cytology either by impression smear, swabs or tape preparations will help diagnose any secondary infection present. Tape preparations can also be useful to check for certain superficial parasites.<sup>8</sup> Bacterial and *Malassezia* infections can be present with all cutaneous reaction patterns, thus complicating diagnosis and treatment. Cases of symmetrical alopecia without overt inflammation, are less likely to have secondary infections. In one retrospective study, 49% of cats harboured staphylococcal bacteria on their skin as a commensal organism.<sup>10</sup> Among others, *S. pseudintermedius* and *S. aureus* are the species most often isolated from healthy cats and cats with skin lesions.<sup>11</sup>

A Wood's lamp can be a useful screening tool looking for apple green fluorescence indicative of *M. canis* infection. Clinicians should remember that a negative Wood's Lamp exam does not rule out dermatophytosis due to the different species causing infection in companion animals. A fungal culture or fungal PCR should be run in cases

suspicious of dermatophytosis. Pruritus is typically minimal to absent in most cases of dermatophytosis so assessing for fungal disease may not be necessary in all cats. Consideration of dermatophytosis may rank higher in indoor/outdoor cats, recently adopted kittens, immunocompromised cats, and Persians.<sup>12</sup>

In any cases with an atypical presentation or where clinicians feel an immune mediated disease more likely, skin biopsy submitted for histopathology should be a diagnostic test of choice.

### **Address Pruritus**

During the diagnostic work-up, anti-pruritic medications can be used for patient comfort if the presenting feline is pruritic. Many itchy cats require glucocorticoids due to their rapid benefit and ability to decrease inflammation. Oral prednisolone at 1-2 mg/kg/day can be used. Care should be taken when using injectable repositol glucocorticoids given the inability to remove the medication once given in the event of side effects. Antihistamines are unreliable in both cats and dogs and cyclosporine, whilst an effective anti-pruritic and anti-inflammatory, has a delayed onset of action so should not be used for immediate benefit.

### **Treat for parasites**

In any cat with dermatologic signs, thoroughly ruling out parasites is important. Due to certain parasites being challenging to find on scraping, paired with concerns about cats grooming habits mentioned previously, an ectoparasiticide trial is a valuable treatment plan in any feline, especially when clinical signs include pruritus. Use of an isoxazoline for both the flea adulticidal action as well as broad spectrum parasite coverage is recommended.<sup>13</sup> Clients should be educated that some parasites can take months to treat whereas fleas may take over 3 months. In one large study looking at 502 pruritic cats, 29% of cases had pruritus responsive to flea treatment.<sup>4</sup>

### **Treat infection**

Superficial skin cytology is the diagnostic method of choice to identify the presence of secondary infection. Cytology can be obtained through direct impression, acetate tape or swabs. Topical antimicrobial therapies are ideal for treatment to limit exposure to systemic antibiotics. However, the grooming behavior of cats may limit their use. Antimicrobial wipes can be used in certain situations or antimicrobial mousses, as long as the cat can be prevented from grooming for a short period of time afterwards. Devon rex and sphynx cat breeds are predisposed to *Malassezia* overgrowth and infection. Cats without a breed predilection often have an underlying hypersensitivity disorder, neoplasia or other internal disease.<sup>14</sup> Finding more than one *Malassezia* per high-power field may suggest yeast overgrowth and warrant systemic therapy for which itraconazole is generally a first choice for systemic treatment.<sup>14</sup>

### **Recheck**

If there is no improvement or only partial improvement of pruritus and clinical lesions after ectoparasiticide treatment and addressing secondary infections, then other causes of pruritus should be investigated.<sup>15</sup> A skin biopsy is recommended in cases with atypical lesions to rule out other pruritic dermatoses (e.g., pemphigus foliaceus), especially in cases of crusting dermatitis without cytologic evidence of bacterial or yeast. With nonseasonal pruritus, a restrictive diet trial should be pursued to rule out food allergies.

Cutaneous adverse food reactions and feline atopic skin syndrome are indistinguishable clinically so an eight-week restricted food trial using a veterinary brand novel protein or hydrolyzed diet should be undertaken. With an eight-week trial 90% of food-allergic cats will have resolution of clinical signs by this time point. Only 50% of feline food-allergic cases will resolve at four weeks.<sup>16</sup> During the trial, anti-inflammatory medications can be prescribed in the initial stages to ameliorate the clinical signs. In some circumstances a second diet trial may be required to confidently rule out food allergy. Cats are notoriously pickier eaters so I tend to recommend a gradual change over 14 days to the new diet. Selecting a diet with dry and canned food can be helpful for some cats. A veterinary brand diet is always recommended for the diet trial due to the concerns with contamination of over-the-counter diets.<sup>17</sup>

## **Feline atopic skin syndrome**

In previous studies, allergies of all types, combined, accounted for 32.7% of all the feline dermatoses documented.<sup>18</sup> Feline atopic skin syndrome (FASS) or feline atopic syndrome (FAS) refers to the entity associated with inflammatory and pruritic allergic skin disease from environmental allergens.<sup>1</sup> There is currently a lack of consensus regarding the role of immunoglobulin (Ig)E in the development of hypersensitivity to environmental allergens. There has been some hesitancy to use the term “atopic dermatitis” when describing cats demonstrating hypersensitivity to environmental allergens, hence FAS or FAASS being used.<sup>1</sup> There are no accurate allergy tests for diagnosing feline atopic skin syndrome (environmental allergies) in cats. As in dogs, diagnosis of FAASS is based on the exclusion of other pruritic diseases and a positive response to therapy. Up to 25–30% of cats with FAASS will exhibit seasonal patterns.<sup>1</sup> Cats can present from 5 months to 15 years of age with FAASS. Abyssinians were disproportionately affected by FAASS in two large retrospective evaluations of allergic cats.<sup>18</sup> Criteria have been examined to aid in the diagnosis of this disease.<sup>19</sup>

A diagnosis of FAASS is an excellent time to consider referral to a veterinary dermatologist, if clients are able. Finding the best therapeutic regimen for a cat can be challenging and multi-modal treatment is often required. Even for clients with cost concerns, a veterinary dermatologist can provide more targeted treatment to bring the patient relief.

Glucocorticoids tend to provide relief for most FAASS cats, so they can be considered as a first line treatment if necessary. However, clinicians must be prudent in reducing glucocorticoid use as much as possible to prevent adverse side effects. If clients prefer medical management, cyclosporine is a labeled treatment for feline allergy and comes in liquid form. It takes approximately 4–6 weeks to reach therapeutic levels but, longer term, can often be reduced to every other day or twice weekly dosing. This therapy should not be recommended for cats that go outside due to the risk of infectious disease exposure that can lead to the development of clinical signs or, rarely, fatality (e.g., toxoplasmosis).<sup>20</sup> Cats on this medication should also be fed a cooked diet. Side effects of cyclosporine in cats appear to be similar to dogs with the most common being gastrointestinal disturbances. I find that gradually increasing the volume of medication administered greatly diminishes these side effects.

Oclacitinib is a Janus kinase inhibitor that decreases pruritus and lesions in allergic dogs. Oclacitinib is not labeled for cats and has not been thoroughly assessed in this species with regard to long-term safety and dosing. In one study, cats with environmental allergies were treated with doses similar to canines for 14 days given twice daily and then longer term once daily. In 5/12 cats there was improvement in clinical scores.<sup>21</sup>

Allergy tests, both serum and intradermal, do not diagnose allergy but rather support the clinical diagnosis as well as aiding in immunotherapy formulation. Unlike other species, cats may have weak reactions on intradermal testing. Interpreting the test can be performed with the aid of intravenously injected fluorescein dye.<sup>22</sup> Fluorescein dye administered intravenously at 5 mg/kg, before or immediately after intradermal allergy testing, enhances results at 15–20 min post-IDT. Reactions can then be visualized with a Wood’s lamp. Either injectable or sublingual immunotherapy can be considered depending on client and patient preference.

## **Psychogenic alopecia**

Psychogenic alopecia is dramatically over diagnosed and should only be considered once all pruritic diseases and reasons for alopecia have been ruled out. In one study of 21 cats referred for psychogenic alopecia, a primary psychogenic cause was only demonstrated in 9% of cats.<sup>23</sup>

## Otitis

In cats, the presence of otitis, with or without secondary infectious, has been reported in 20.9% of patients with FASS.<sup>24</sup> If lesions or pruritus are localized to solely the ears or ears and areas of skin in close contact with the ears then ear mites, ear polyps etc should be considered more likely. Certain cases of allergic skin disease can present with solely otitis.

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