

Feline dermatology: signs, diagnosis, skin disorder types and treatment

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Date : June 1, 2014

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Summary

SKIN disease is a common finding in cats and can result in pruritus, scaling, hair loss or other lesions. Flea-bite hypersensitivity is extremely common and allergies to food and the environment are also seen. Other parasitic diseases, infectious diseases, neoplasia or immune-mediated conditions may be diagnosed. Many diagnostic tests – such as skin scrapings, hair plucks, fungal culture and cytological examination – are easy to perform and can rule many diseases in or out prior to the carrying out of more detailed tests such as biopsy or allergy testing, which may be required in some cases.

Key words

pruritus, over-grooming, alopecia, hypersensitivity, flea allergic dermatitis (FAD)

SIGNS of skin disease in cats include alopecia, scaling or crusting, pruritus (the sensation of itch), papules, over-grooming and nodules. The skin is accessible to examine and sample from, but has a restricted range of lesions, so it is usually impossible to make an exact diagnosis by examining the skin lesions.

Cats with pruritus due to a range of parasitic or allergic conditions tend to produce a range of “reaction patterns”. These are the eosinophilic granuloma complex (EGC), miliary dermatitis, head and neck pruritus and symmetrical alopecia. EGC lesions are often raised plaques affecting the abdomen or thighs, but can also include rodent ulcers or chin swelling.

Miliary dermatitis is a term used to describe the multifocal crusted papules that are often found on the dorsum and may be a symptom of fungal or immune-mediated disease, as well as the hypersensitivity disorders.

Symmetrical alopecia used to be considered a hormonal abnormality but is now known to usually be due to barbering of hair and not hair loss – that is, the cat is grooming its hair out as a result of pruritus. Hair plucks can be very useful to demonstrate trauma to the hair tips to owners who do not believe their cat is over-grooming.

Diagnosis

Further investigation of skin disease requires a good history, clinical examination and some basic diagnostic tests to narrow down a differential diagnosis list ([Table 1](#)).

History is the most vital part of a dermatological consultation. Printed sheets of questions or a computer consultation template can help to avoid missing useful information. You may need to schedule a longer consultation or book consultations at the end of morning surgery to allow enough time. Nurses can assist by history taking while the vet consults with another patient and can also perform many of the diagnostic tests mentioned later.

History should include the following.

- Age, breed and family history – for example, dermatophytosis is more commonly seen in young kittens.
- Indoor and outdoor exposure – for example, to ascertain the risk of cowpox (in hunting cats).
- Seasonality of disease can be suggestive of certain diseases – for example, atopic dermatitis and trombiculiasis (“harvest mites”).
- Contagion to other pets or owners may also be helpful – for example, flea bites and dermatophytosis (ringworm).
- Previous treatment and response (or failure to respond) – for example, response to flea treatment historically or to anti-inflammatory doses of glucocorticoids (0.5mg/kg to 1.0mg/kg prednisolone).
- Disease symptoms other than skin signs – for example, there may be gastrointestinal signs with

adverse food reaction. Vomiting hairballs may be seen with over-grooming or irritable bowel syndrome.

- Weight loss seen with systemic disease.

Full clinical examination looking for systemic disease should follow the history, then lead on to a full dermatological examination, including ventrum, feet and ears.

Basic diagnostic tests

Basic diagnostic tests are all cheap and easy and can be performed during the first visit of a cat with skin disease or certainly early on in a dermatological work-up.

- Skin scrapes mounted in mineral oil looking for parasites (adults, juvenile mites or eggs).
- Coat brushings for parasites, eggs or flea dirt.
- Wet paper test for fleas ([Figure 1](#)). Run a piece of white paper under the tap, then hold it next to/under the pet while you ruffle the fur all over. Loose dirt and fur will stick to the paper. Flea faeces are small black bits of dirt but the contained blood means they become red streaks when they get wet.
- Hair plucks for parasites, eggs and dermatophytes. Also examine the hair tips; traumatised hair tips confirm pruritus in doubtful cases. Normal hairs will taper to a fine point; nibbled hairs look broken off. Owners sometimes will not believe their cat is itchy and this helps you prove it.
- Dermatophyte culture. This can be done in-house or sent away to an external laboratory. Remember to check the culture daily if done in-house – the colour change should happen at the same time as the fungal growth. If the fungal growth is not noticed and the colour change happens later, this is a false positive. If you are not confident in reading these then send them to a laboratory, which will also be able to tell you which species of fungal disease the animal has.
- Acetate tape strips – unstained to look for parasites or eggs, or stained with Diff Quik (or equivalent) for cytological examination.
- Cytological examination of impression smears, tape strips, fine needle aspirates from nodules or aural discharge, looking for bacteria or yeast, neutrophils, acanthocytes or neoplastic cells.
- Response to flea treatment. Treatment of all animals in the household every two weeks (off-label use) on three or four occasions and treatment of the environment can be helpful if you are suspicious, but cannot prove, flea infestation.

Allergy

Allergic skin diseases (or hypersensitivity dermatitis) result from inappropriate or exaggerated responses to single or multiple allergens. The most common allergic skin diseases seen in small animals are flea-bite hypersensitivity, adverse food reaction (food allergy) and atopic dermatitis. Other hypersensitivity disorders that are less commonly seen include urticaria (hives) and mosquito bite hypersensitivity.

Animals with allergic skin disease generally present with pruritus – an unpleasant cutaneous sensation causing a desire to scratch. Allergic animals often have secondary manifestations of pruritus, such as bacterial or yeast infections, or excoriations. Cats can cause massive self-trauma within a short time period.

Flea allergic dermatitis

Flea allergic dermatitis (FAD) – or flea-bite hypersensitivity – is a pruritic skin disease resulting from hypersensitivity to proteins in flea saliva and is the most common pruritic dermatosis in cats. Fleas and flea faeces are often not seen due to efficient grooming.

FAD commonly presents as self-induced symmetrical hair loss, miliary dermatitis and/or lesions of the eosinophilic granuloma complex. Lesions affecting the caudal dorsum, tail base and/or caudal or medial thighs are very suspicious of FAD. Miliary dermatitis is a descriptive term – rather than a diagnosis – and can be seen in cases of FAD, atopy, bacterial folliculitis, parasites, dermatophytosis and pemphigus.

Other allergic diseases (environmental or food allergy)

Cats can also react to environmental allergens such as dust mites or pollens (similar to atopic dermatitis in dogs). They often present with one or more of the cutaneous reaction patterns: head and neck pruritus, EGC, miliary dermatitis or symmetrical alopecia, particularly affecting the ventral abdomen or thighs.

Cats may suffer from seasonal or non-seasonal allergy, depending on the allergen(s) they react to. Cutaneous adverse food reaction (food allergy) can present with exactly the same spectrum of clinical signs, although head and neck pruritus may be more common. Gastrointestinal signs may be present in some cases, but are not always present.

Atopy and food allergy are clinically indistinguishable. Food allergy cannot be diagnosed by serological testing but only by response to a strict diet trial.

If a cat fails to respond to a diet trial then serological testing can be used to identify possible

environmental allergic triggers to its disease.

Other selected skin diseases

Pemphigus foliaceus is the most common immune-mediated skin disease in the cat, often presenting as severe crusting affecting the ears ([Figure 2](#)). The rest of the head and the nail beds may also be affected. Cytological examination of smears of exudate under any crusts may reveal acantholytic cells (“rounded up” skin cells; [Figure 3](#)), but biopsy is generally required for definitive diagnosis. Treatment is by the use of immunosuppressive drugs – mainly corticosteroids.

Cowpox is a viral disease that may be seen in hunting cats after a rodent bite. The lesions often are ulcerated papules (they look like a large version of miliary dermatitis in some cases). If any immunosuppressive medication is given, the cat can develop viral pneumonia.

Diagnosis is generally made on biopsy (or viral isolation from a scab). Lesions will resolve on their own if there is no secondary infection and if immunosuppressives are avoided.

Further dermatology work-up

Basic diagnostic tests should always be performed first to rule out parasites and infections. Skin biopsy should be performed if the disease appears unusual. Biopsy is a frustrating tool if used on all skin cases. Superficial perivascular dermatitis is a common inflammatory response to many diseases such as parasites, infection or allergy, so this gives you very little information. You should biopsy if you have nodular disease, severe clinical signs, if there is no response to rational therapy or if you suspect you may have a disease that requires treatment with medications with severe side effects.

Multiple samples should be taken without prior preparation of the skin and sent to a dermatopathologist rather than a general pathologist, if possible.

A strict diet trial should be carried out once parasitic diseases and infections have been ruled out. Home-cooked diets, novel protein or hydrolysed protein diets are possible options. Cats are more difficult than dogs to food trial as they will sometimes starve rather than eat your chosen diet. Hunting or eating at a neighbour's can also confound your trial and cats may need to be hospitalised if you are very suspicious of diet being the source of allergy.

The chosen diet should be fed alone for at least six weeks. Challenge with the previous diet should be performed to ensure any improvement in skin disease is not coincidental. Home-cooked diets may need to be supplemented if being fed for a long period of time, but are generally acceptable in the short term. A suitable novel protein – for example, duck or venison – should be chosen according to what the pet has previously been fed. Serological tests are unreliable for the diagnosis of adverse food reaction.

Response to treatment is a reasonable diagnostic tool for flea-bite hypersensitivity or other parasitic diseases. Otherwise, a full work-up to achieve a final diagnosis is recommended.

Treatment of skin disease

Obviously, treatment should be tailored to the underlying disease process. Excellent flea control of all animals in the household, as well as environmental control, is required in cases of FAD. Spot-on treatments, sprays, injections and tablets are all available and it is best to talk to the owner about what would be most achievable for his or her pet.

Topical treatments are plentiful and include selamectin and imidacloprid; spinosad is available as a palatable tablet. Some of the topical treatments can also be used for management of other parasitic diseases, such as ear mites.

Secondary bacterial infection after skin damage is extremely common and well recognised in the dog. It is less well recognised in cats but is probably more common than generally suspected. Antibiotic therapy (preferably chosen after cytological examination to confirm the presence of bacteria and neutrophils) can be given systemically or antimicrobials can be used topically. Shampooing can be used to wash microbes from the skin surface and can also wash off potential allergens. Not all cats tolerate bathing, however.

If a primary disease has been diagnosed, such as atopic dermatitis or pemphigus, then specific therapy should be used. Drugs used in the management of allergic skin disease include corticosteroids (used by injection, orally or topically), injectable immunotherapy and ciclosporin. Every other day, oral therapy or topical treatment should be used, where possible, to reduce long-term side effects, as these cats will require medication for the whole of their lifetime. Medications should be tapered to the lowest dose possible.

Cats can be challenging patients in which to make a diagnosis but a consistent approach, including basic diagnostic tests, will generally yield a diagnosis.

Further reading

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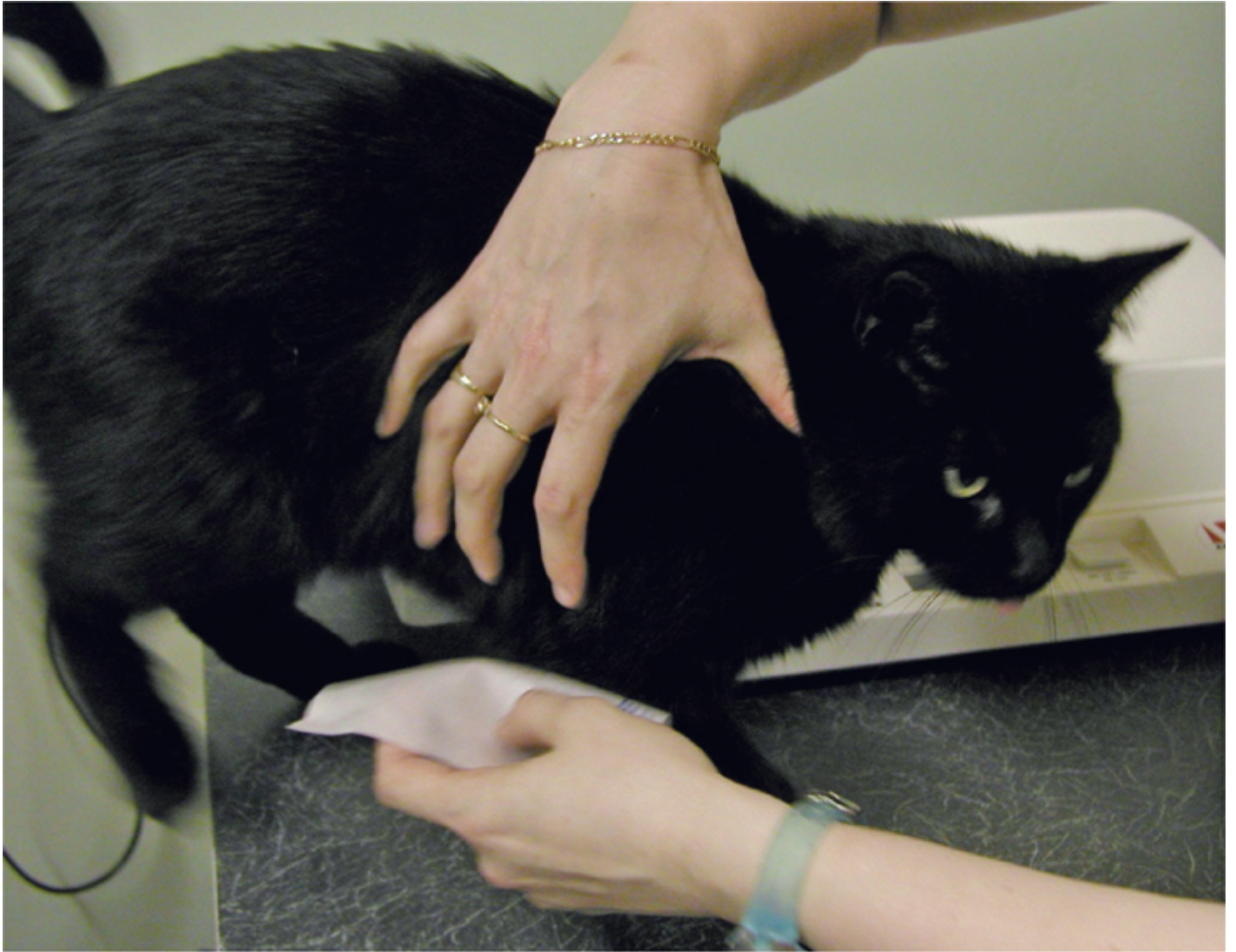


Figure 1. Wet paper test for fleas.



Figure 2. Crusting of the ears in a cat with pemphigus foliaceus.

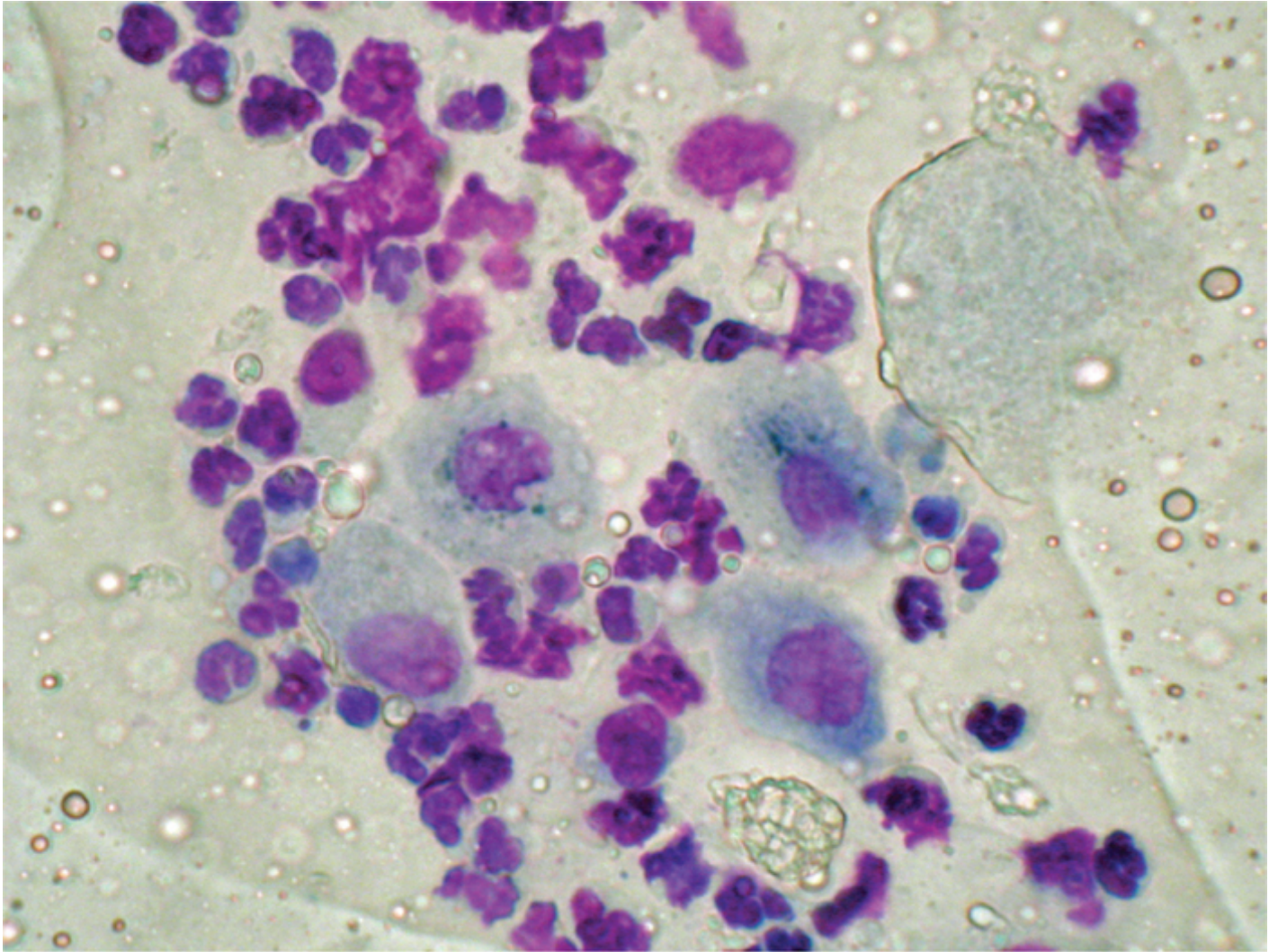


Figure 3. Acantholytic cells and neutrophils in a cytology specimen from a case of pemphigus foliaceus.

Class of disease	Possible differentials
Parasitic	Fleas, <i>Otodectes</i> , <i>Trombicula</i> , <i>Cheyletiella</i> , lice, ticks, <i>Demodex</i>
Infection	Bacterial, dermatophytes, other fungal diseases, viral
Immune-mediated	Pemphigus foliaceus, drug reaction
Allergy	Atopic-like dermatitis, adverse food reaction, flea allergic dermatitis, contact dermatitis (allergic or irritant), urticaria
Neoplasia/paraneoplastic syndromes	Mast cell tumour, epitheliotropic lymphoma, squamous cell carcinoma, pancreatic paraneoplastic alopecia
Endocrine	Hyperadrenocorticism
Congenital or hereditary disease	Ehlers-Danlos, seborrhoea
Psychogenic	Psychogenic alopecia

TABLE 1. Differential diagnosis of feline skin disease