IMMUNE MEDIATED AND HYPERSENSITIVITY SKIN DISEASES OF CATS

Robert Allen Kennis, DVM, MS, DACVD
Auburn University

Literally all skin diseases of cats are immune mediated. The focus of this topic will center around those skin diseases which are autoimmune and those which reflect an exaggeration or inappropriate immune response. Individual diseases will be covered with case-based material. There will be a broad review of immune suppressing drugs and their potential side effects.

Pemphigus foliaceus (PF) is one of the most common autoimmune diseases of cats but is still considered uncommon within the general population. There are no known predispositions such as breed or sex. In general, PF is likely to affect middle aged cats but has occurred in older cats (greater than 9 years). This is an important differentiation from canine PF where it is a disease of young to middle aged dogs.

Clinical findings include crusting and ulcerative skin lesions. The typical pustules frequently seen in canine PF are rarely identified in cats. The crusted lesions tend to be locally severe on the ears and face region but may be seen anywhere on the body. The crusted lesions on the head and ears may appear clinically similar to a cat with feline scabies (Notoedres cati). The major difference is that feline PF is usually not pruritic while feline scabies tends to be severely pruritic. Feline atopy, food allergy, and ear mites (Otodectes cynotis) are important differentials if pruritus is present. Feline PF may affect only the claw and nailbeds. The typical history is paronychia affecting more than one digit (the author has seen 1 case of feline PF where only one digit was affected). Frequently these lesions develop a secondary bacterial infection (commonly Staphylococcus sp) and may respond incompletely to antibacterial therapy. A history of relapse after therapy or multiple digit involvement is highly suspicious of feline PF. Additional differential diagnoses when only the digits are involved include: trauma or foreign body, fungal infections of all types including dermatophytosis, primary bacterial infections, pemphigus vulgaris (very rare), contact hypersensitivity, and lupus (very rare).

A tentative diagnosis may be made using evaluation of direct impression skin samples. Acantholytic cells (cells from the spinous cell layer which have lost their desmosomal attachments) are present in all cases of feline PF, but in smaller numbers than canine PF. The important thing to remember is that a severe bacterial skin infection can cause acantholysis. If bacteria are present on cytologic evaluation, appropriate antibacterial therapy should be instituted prior to biopsy collection. This is important because it may be impossible for the histopathologist to make a definitive diagnosis of PF if bacteria are present. A diagnosis of PF should be determined by histopathology evaluation prior to instituting immune suppressive therapy.
The collection of appropriate tissue samples will usually require general anesthesia. A complete CBC, Serum chemistry profile, urinalysis, and FIV/FeLV should be performed. This will function as baseline information prior to immune suppressive therapy and may help to uncover an underlying problem that may be contributing to the lesions. As an example, FIV or FeLV may allow opportunistic infections leading to similar clinical findings of PF. It is recommended that a thyroid evaluation should also be performed for all cats that present with clinical symptoms greater than 8 years. Biopsy techniques are variable depending upon the tissue to be samples. If only the ears are involved, a cosmetic ear trim may be best. Usually the face is also involved so a 6 mm. punch sample will be appropriate. Collecting biopsy tissue samples from the tissue around the nails can be difficult. 3 mm. punch samples can be collected from the skin around the nails but the small sampling size may make a definitive diagnosis difficult. In many cases it might be best to disarticulate an entire claw for histopathologic evaluation. It is very important to provide historical and clinical signs to the pathologist so that they can help to make an accurate diagnosis. In general, feline PF lesions tend to contain very few acantholytic cells making the diagnosis more difficult for the pathologist, especially if bacteria are present.

The treatment options include corticosteroids and other immune suppressive agents. Corticosteroids are always indicated to induce a remission. Depending upon the response to therapy, additional immune suppressive agents may be added. Many cases of feline PF may be managed with only corticosteroids. A poor response to therapy would be suggestive of an incorrect diagnosis or secondary infection. The preferred corticosteroid for induction is methylprednisolone (Medrol®) given orally at 2.2-4.4 mg/kg bid (approximately 8 mg bid for a 10# cat is preferred by the author). Prednisolone (but not prednisone) can be used at the same dosages above. Although the higher end of the dosing range is listed in textbooks, it is rarely indicated for therapy. Injectable forms of methylprednisolone acetate (Depo Medrol®) should be avoided in most circumstances. For those cats that cannot be pilled, an oral suspension should be formulated before succumbing to injectable therapy. Some cats may develop diabetes so periodic monitoring of blood glucose is indicated. It is highly recommended that a urinalysis with bacterial culture should be performed at least twice yearly. Once a remission is reached, the dosage should slowly be decreased. The ultimate goal should be maintenance with anti-inflammatory dosages on an alternate day dosage. Remission will not be reached is conservative dosages are selected. Also, not all cats can be maintained on anti-inflammatory dosages without a relapse occurring.

Chlorambucil (Leukeran®) at 0.1-0.2 mg/kg once daily may be used as adjunctive therapy. Once a remission has been achieved, this dosage may be decreased to every other day. Myelosuppression may occur so periodic evaluation of a CBC is indicated. This drug has a slow onset of activity. Chlorambucil is indicated if there are severe side effects associated with the selected corticosteroid, if it is difficult to achieve a clinical remission at full corticosteroid doses, or if it is not possible to reduce the immune suppressive dosage of corticosteroid without a relapse. Most feline PF cases can be managed without chlorambucil.
Gold salt therapy with aurothioglucose (Solganal ®) at 0.5-1 mg/cat I.M. once weekly may be considered a last effort therapy. It is never given as a sole therapy but in conjunction with other immune suppressive agents. The mechanisms of action is unknown but may relate to immune suppressive effects on lymphocytes and anti-inflammatory effects. Potential side effects include nephrotoxicity, adverse drug eruptions, and blood dyscrasias. This therapy was once considered a primary treatment for feline PF but has lost favor due to lack of clinical efficacy potentially life-threatening side effects. Also, this product has become difficult to obtain commercially.

Cyclosporine (Neoral ®, Atopica ®) 3-5 mg/kg/day PO has been used as an immune suppressive agent in dogs and cats. The mechanism of action suppresses induction of T-cell lymphocytes. Side effects may include vomiting, diarrhea, or anorexia. Myelosuppression is not common. Although this potent immune suppressive agent is effective for some autoimmune diseases, it has been shown to be ineffective for the treatment of feline PF.

Other immune suppressive agents including cyclophosphamide, dapsone, tetracycline/niacinamide, and azathioprine have been used in the cat with poor results. Newer immune suppressive agents such as mycophenolate may show future promise in treating feline PF.

There are many cases where an inflammatory skin disease, infectious skin disease or adverse drug reaction may mimic an autoimmune disease. Correct biopsy technique is the most important step toward an accurate diagnosis. Avoid the use of corticosteroids until diagnostic samples are collected. A partial to complete response may mask the true diagnosis. If a drug eruption is suspected, use supportive care only. Any drug including corticosteroids can propagate an adverse drug reaction. Use topical patches for pain relief to avoid parenteral medications. A biopsy sample can help confirm the diagnosis of a drug eruption but may not clearly point to the cause. A thorough history may help.