**Advances in the diagnosis and treatment of allergic skin disease**

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Mary Fraser BVMS, PhD, CertVD, PGCHE, FHRA, CBiol, MRCVS discusses advances in the management of challenging atopic dermatitis and allergy cases

ALLERGIC skin disease is one of the most common reasons for an owner presenting their cat, dog or horse to the vet. Every spring and summer the number of itchy animal cases increases. Diagnosis and management of allergies, in particular atopic dermatitis, can prove challenging to say the least.

Many advances have been made in the diagnosis and treatment of allergic skin disease. Traditional medications include antihistamines, essential fatty acids and, in some cases, corticosteroids, but many more options are now available to enable a treatment plan to be tailored to suit the individual animal.

Allergic skin disease of dogs and cats is often classified as flea-allergic dermatitis, atopic dermatitis, food hypersensitivity and contact allergy. Preventing fleas is a major part of controlling skin disease in dogs and cats. New products containing metaflumizone (for example ProMeris [Fort Dodge]) and imidacloprid and moxidectin (for example Advocate [Bayer]), continue the battle against fleas. Metaflumizone is a new product on the flea control market; it is a sodium channel antagonist which, through its unique mode of action on sodium transport, causes paralysis and death of insects.

As veterinary nurses you will be well aware of the importance of eradicating stages of the flea life
cycle that are present in the environment as part of managing a case of allergic skin disease. Anecdotal evidence has suggested that this was also of benefit in reducing the number of house dust mites present in the surroundings of an atopic dog. Recent work has shown that this really is the case and at least one environmental insecticide is now licensed to use to control house dust mite numbers.

**Challenging condition**

Atopic dermatitis has always been and will remain a challenge to diagnose and treat. Diagnosis was traditionally based on Willemse’s criteria – namely the exclusion of all other dermatological conditions, and the presence of characteristic features (Figure 1) such as pruritus demonstrated by chewing the feet, erythema of the feet, preauricular area, periocular areas, and otitis externa.

The American College of Veterinary Dermatology task force has brought together research on canine atopic dermatitis and has developed the third version of the Canine Atopic Dermatitis Extent and Severity Index, known as CADESI-03. The original CADESI scale was based on work from humans and was used to assess disease morbidity – or severity – of atopic dermatitis. The higher the score the more severe the skin disease.

This new version is an expansion that covers many different body sites. Put simply, the parameters of erythema, lichenification, excoriations and self-induced alopecia are scored from zero (none), one (mild), two-three (moderate) and finally four-five (severe), and applied to 62 different areas of the body from the muzzle and chin through to the ventral and dorsal tail including axilla, flank, neck (Figure 2) and limbs on the way. Bringing these factors together can give the worst possible case a score of 1,240 – not something that you would want to see on a regular basis.

As with all scoring systems they are only as reliable as the person carrying out the assessment. Work by Olivry and others (2007) has shown that this scale is reliable and has been validated as a useful tool in the assessment of cases of canine atopic dermatitis.

**Diagnosis**

Intradermal skin testing (IDST) has been used in the diagnosis of atopic dermatitis in both small and large animals for many years, and has stood the test of time well (Figure 3). It is still regarded as the gold standard test although it can never be used alone to make a diagnosis of atopic dermatitis in small animals, or sweet itch in horses. Serological tests were always viewed as being either less sensitive or less reliable than intradermal skin testing.

Advances in the technology required to produce these tests, however, has resulted in increased sensitivity and specificity. They may be preferred by an owner or clinician where a patient may not be a candidate for sedation, or where owners are unwilling to have their pets clipped for IDST. Serology can assess the presence of antibodies specific for individual allergens (Figure 4). Tests are
available to assess total IgE levels; however, it has been shown by Fraser and others (2003) that total IgE levels do not correlate with the presence of atopic dermatitis, and that dogs with high total IgE may not develop clinical signs of atopic dermatitis.

**Tailored treatment**

Treatment still includes traditional medications, as already mentioned. However, the treatment needs to be tailored for an individual animal, at different times of the year, and will probably change during that time – there is no quick fix for an allergic animal.

A variety of shampoos are available for dogs – and possibly even the odd cat. Work by Loflath and others (2007) demonstrated that using shampoo alone, or alongside whirlpool therapy reduced the degree of pruritus in 22 dogs. Using a whirlpool has been shown anecdotally to be beneficial, but as can be seen from these results, is not essential for a therapeutic outcome.

A new topical therapy is a hydrocortisone spray (Cortavance, Virbac) that can be applied to problem areas such as the feet, flexor surface of the carpus, and ears. The effects can be similar to those of systemic glucocorticoids, but without the side effects, as the drug acts locally and is not absorbed systemically. Work by Nuttall and others (2009) demonstrated that CADESI scores and pruritus scores were significantly decreased by the use of this medication.

**Otitis externa**

One of the most commonly presented conditions associated with allergic skin disease is otitis externa. Ear cleaners have developed over recent years and are now much gentler on the ear as well as having some remarkable antibacterial properties. Ear cleaners containing isopropyl alcohol, parachlorometaxylenol or those with a low pH were all shown to have antibacterial properties, which could in some cases kill *Pseudomonas* species (Swinney and others, 2008).

Food allergy can be difficult to diagnose and to prove. Where atopic dermatitis ends and food allergy begins is something that dermatologists could spend all day discussing. It was interesting, therefore, to note that a recent study demonstrated the benefits of diet in the management of canine atopic dermatitis (Glos and others, 2008).

It was suggested that using a commercial diet designed for problem skin cases significantly reduced the degree of pruritus in affected animals. However, the study did not go so far as to explain whether this was due to the increased levels of essential fatty acids or due to the novel protein source (fish) in the diet. From a practical perspective, the fact that the diet made a difference is encouraging, albeit without an explanation of why.

**Storage mites**
Still on the topic of diets, if any of you have had anything to do with IDST you will be aware that many dogs show positive results to storage mites such as *Tyrophagus*, *Acarus* and *Lepidoglyphus.* It has been suggested that reactions to these mites were due to cross-reactions with house dust mites, or to contact with storage mites in the environment.

Taking this one step further it has been suggested that storage mites could be present within bags of dry dog food. I have attempted to find storage mites in bags of dry dog food without success. However, work by Brazis and others (2008) did find storage mites in bags of dry food, leading to the proposition that the diet could be a source of storage mites for some animals. This could lead on to the question – where does atopic dermatitis end and food allergy begin – but perhaps we can ponder on that another day!

**References**