

## ATOPIC DERMATITIS (ATOPY)

Atopy is an allergic disease triggered by allergens such as pollens, moulds, dust mites and other insects. These allergens can be inhaled or absorbed through the skin. The disease in animals bears some similarity to hayfever or atopic eczema in humans.

### Clinical signs of Atopy

Clinical signs can vary for animal to animal. Mostly, we see itchy animals with hair loss, redness and secondary infections leading to crusting, scaling, pustules, open sores and greasy skin. The irritation may be seasonal (as in the case of pollen allergy) or year round (especially in cases of dust mite allergy).

The distribution of itch in dogs may include:

- Face
- Feet
- Ear/s - occasionally recurrent ear infections are the only clinical sign
- Abdomen
- Groin
- Perineum
- Legs
- Face/chin
- Axillae (armpits)

Cats are more difficult to assess - facial lesions and itch are common, but overgrooming of the abdomen, groin, back, neck and limbs are also seen.

### Atopy and infections

Atopy is a complex disease caused by immune dysfunction (hypersensitivity) and the allergy is often complicated by secondary bacterial or fungal infections. These infections not only cause visible lesions such as scaling, hair loss, hyperpigmentation, pustules and crusting but some infectious agents can also act as allergens themselves and further stimulate the hypersensitivity reaction.

Infection control is an integral part in the management of atopy. In many cases, infections can increase the level of itch however it is important to remember that treating the infection does not treat the underlying allergic condition, so often some level of itch remains. In addition, if the underlying allergy is not addressed then infections are likely to recur.

## Atopy and skin barrier function

The skin provides a protective barrier between the 'inside' and 'outside' world of any organism. It plays a vital role in the defence against infectious agents and irritants, but it also is a very active part of the immune system. It also acts as a barrier to allergen penetration and to prevent water loss from the animal into the environment

Abnormalities in the skin barrier have been shown to exist in human atopic dermatitis, as well as a number of other skin and allergic conditions. Skin barrier defects have also been more recently demonstrated in dogs, but the clinical implications of this dysfunction are not yet clear.

Altered skin barrier function may lead to increased allergen penetration (therefore driving the allergic response). It can also cause increase water loss through the skin (skin drying). Much of the protective outer layer of the skin is made of lipid (fats and oils) and in both humans and dogs, abnormalities of the lipid profile have also been demonstrated. The abnormal lipid profile may manifest in some atopic animals as skin dryness, flaking, scaling or even skin greasiness.

Altered skin barrier function can also lead to colonisation of the skin by bacteria and yeast organisms, and is a potential factor in the increased rates of infection seen in atopic individuals.

## Atopy and genetics

Atopy is more common in some breeds of dog, though any animal may be potentially affected. West Highland White Terriers, Staffordshire Bull Terriers, Beagles, Labradors and German Shepherds are all commonly seen dog breeds. Breed predispositions in cats and horses have not been recognised.

The increased prevalence of the disease in certain breeds of dog suggests a genetic basis. However, the heritability (how it is passed from parents to offspring) of the disease still unclear. Several genetic studies have been completed (and more are underway) that attempt to identify target genes, molecules or proteins implicated in atopic dermatitis but none of the studies have been conclusive.

## Diagnosis of Atopy

The diagnosis of atopic dermatitis is a clinical decision, based on numerous factors including (but not limited to):

- distribution of the itch
- seasonality
- age of onset
- breed
- response to medications (or lack of response)
- elimination of other causes of itch such as parasites (fleas, scabies) and adverse food reactions
- IgE (an allergy protein present in the blood) testing
- Intradermal skin testing

Blood testing (using Allercept IgE testing) and intradermal skin testing are NOT used as a sole diagnostic tool. This is because occasionally even normal animals have abnormal allergy test results. Thus it is important that all of the criteria above are assessed together. Having the correct diagnosis is VITAL to the treatment and outcome of your pet.

## Treatment of Atopy

There are several broad ways to treat atopic dermatitis. As it is such a complex disease, a single treatment alone is rarely suffice to control all components of the allergy. Often, several treatments are used together to control all aspects of the disease.

Treatment options include:

- immunotherapy (allergy 'vaccine'), following specific allergy testing
- avoidance (rarely practical)
- skin barrier repair
- infection control
- Anti-inflammatory and immunomodulatory medications

It is important to remember that every animal is different and we will discuss with you at length the best treatment for your pet to control his or her disease.

### In summary

Atopy is a complex, potentially life-long disease that can be managed effectively sign a number of treatment strategies. The key in successful management of atopic animals is commitment to the treatment course, compliance with medications and instructions and effective communication with your dermatologist to ensure a successful outcome.