

# Atopic Dermatitis

## (Inflammation of the Skin Caused by Allergens)

### Basics

#### OVERVIEW

- “Atopic” refers to “atopy”; atopy is another name for atopic dermatitis
- “Dermatitis” is inflammation of the skin
- “Allergy” is an altered state of immune response to a foreign substance; “allergen” is a substance to which the pet has developed an allergy
- Atopic dermatitis is a form of skin inflammation due to a hypersensitivity reaction of the pet to normally harmless or innocuous substances, such as pollens (grasses, weeds, and trees), molds, house-dust mites, skin (epithelial) allergens, and other environmental allergens
- The skin inflammation (dermatitis) is long term (chronic) and relapses are common; it is not contagious and is characterized by itchiness (known as “pruritus”)

#### GENETICS

- Dogs—*inherited susceptibility*; however, the mode of inheritance is unknown (possibly polygenic) and environmental influences are important
- Cats—*inherited predisposition unclear*

#### SIGNALMENT/DESCRIPTION OF PET

##### Species

- Dogs
- Cats

##### Breed Predilections

- Dogs—any breed, including mixed-breed dogs, may be affected; recognized more frequently in certain breeds or families of dogs, which can vary geographically; overall estimated 3-15% of dogs
- In the United States, commonly affected dog breeds include the Boston terrier, Boxer, Cairn terrier, Chinese shar pei, cocker spaniel, Dalmatian, English bulldog, English setter, Irish setter, Lhasa apso, miniature schnauzer, pug, Sealyham terrier, Scottish terrier, West Highland white terrier, wirehaired fox terrier, Labrador retriever and golden retriever
- Cats—no breed appears to be more likely to develop allergic skin disease (atopic dermatitis)

##### Mean Age and Range

- Dogs—mean age at onset of signs is 1–3 years; range 3 months–6 years of age; signs may be mild the first year,



but usually progress and become clinically apparent before 3 years of age

- Cats—6 months to 2 years

### **Predominant Sex**

- Both sexes are probably affected equally

## **SIGNS/OBSERVED CHANGES IN THE PET**

- “Itching” as demonstrated by scratching, rubbing, and/or licking (itchiness is known as “pruritus”)
- Most skin changes caused by self-induced trauma (scratching, rubbing, licking, biting at skin)
- Areas of the face, feet, and under the front legs (armpits, or axillae) are affected initially
- Signs may be seasonal initially; early age of onset; may have relatives with same problem
- Recurring skin and/or ear infections (may be bacterial and/or yeast infection)
- May have temporary response to steroids
- Signs progressively worsen with time
- Cats face and neck itchiness primarily
- Lesions—most commonly between toes (interdigital), wrist (carpus) and ankle (hock), muzzle, around the eyes (periocular), armpits (axillae), groin and ear flaps (pinnae)
- Lesions vary from none to broken hairs or saliva discoloration of the hairs (giving a rust-brown appearance to light colored hair) to reddened skin; small, raised skin lesions (known as “papular reactions”); dried discharge on the surface of a skin lesion (known as a “crust”); hair loss (known as “alopecia”); darkened skin (known as “hyperpigmentation”); thickening and hardening of the skin, usually associated with hyperpigmentation (known as “lichenification”); and excessively oily or dry scaling of the skin (known as “seborrhea”)
- Inflammation of the moist tissues around the eye (known as “conjunctivitis”) and lid inflammation (blepharitis) and nasal inflammation (rhinitis) may occur
- Secondary infections with bacteria or yeast of skin and ears common

## **CAUSES**

- Pollens (grasses, weeds, and trees)
- Mold spores (indoor and outdoor)
- *Malassezia*, a type of yeast found on the skin of animals
- House-dust mites
- Animal dander
- Insects

## **RISK FACTORS**

- Temperate environments with long allergy seasons and high pollen and mold-spore levels
- Coexistent skin disorders characterized by itchiness (known as “pruritic dermatoses”), such as flea-bite hypersensitivity and adverse food reaction; these coexistent skin disorders increase the severity of the signs

## **Treatment**

### **HEALTH CARE**

- Outpatient
- Frequent bathing in cool water with shampoos designed to minimize itchiness can be beneficial

### **ACTIVITY**

- Avoid substances (allergens) to which the pet is allergic, when possible

### **DIET**

- Diets rich in essential fatty acids (omega-3) may be beneficial

## **Medications**

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should

not be considered as all inclusive

## **IMMUNOTHERAPY (HYPOSENSITIZATION OR “ALLERGY SHOTS”)**

- Administration (under the tongue (sublingual); usually subcutaneous [SC] injections) of gradually increasing doses of the causative allergens to the affected pet in an attempt to reduce their sensitivity to the particular substance(s)
- Allergen selection—based on allergy test results, patient history, and knowledge of local plants that contribute pollen into the air
- Indicated when it is desirable to avoid or reduce the amount of steroids required to control signs, when signs last longer than 4–6 months per year, or when nonsteroidal forms of therapy are ineffective
- Successfully reduces itchiness (pruritus) in 60–80% of dogs and cats
- Response to “allergy shots” is usually slow, often requiring 3–6 months and up to 1 year to see full effect

## **CYCLOSPORINE**

- Cyclosporine (Atopica™) is effective in controlling itchiness (pruritus) associated with long-term (chronic) allergic skin disease (atopic dermatitis); many pets can be controlled adequately long-term with less frequent dosing (such as every 2–4 days), as directed by your pet's veterinarian; frequent pet monitoring is recommended; slow onset of activity (1–4 weeks); effectiveness similar to steroids

## **STEROIDS**

- May be given for short-term relief and to break the “itch–scratch cycle”
- Should be tapered to the lowest dosage that adequately controls itchiness (pruritus), as directed by your pet's veterinarian
- Prednisolone tablets
- Cats may need methylprednisolone acetate treatment, administered by infrequent injection

## **ANTIHISTAMINES**

- Less effective than are steroids
- Evidence of effectiveness is poor
- Dogs—antihistamines include hydroxyzine, chlorpheniramine, diphenhydramine, fexofenadine, and clemastine
- Cats—chlorpheniramine; effectiveness estimated at 10–50%

## **OTHER MEDICATIONS**

- Tricyclic antidepressants (TCAs, such as doxepin or amitriptyline) have been given to dogs to control itchiness, but their overall effectiveness and mode of action is unclear; not extensively studied in the cat
- Topical triamcinolone spray can be applied to the skin over large body surfaces to control itchiness (pruritus) with minimal side effects
- Gabapentin, pentoxifylline have been used
- Oclacitinib for dogs over one year old, controls itchiness, onset time and response similar to steroids; not yet used long-term

## **Follow-Up Care**

### **PATIENT MONITORING**

- Examination of the pet every 2–8 weeks will be done when a new course of treatment is started
- The veterinarian will monitor itchiness (pruritus); self-trauma, such as scratching or licking; skin infection; and possible adverse drug reactions
- Once an acceptable level of control is achieved, the veterinarian will examine the pet every 3–12 months
- A complete blood count (CBC), serum chemistry profile, and urinalysis—will be recommended every 3–12 months for pets on long-term (chronic) steroid or cyclosporine therapy

### **PREVENTIONS AND AVOIDANCE**

- If the substances (allergens) to which the pet is allergic have been identified through allergy testing, the owner

should undertake to reduce the pet's exposure to these substances, as much as possible; however, reduction of exposure seldom makes a significant improvement on the level of the pet's itchiness

- Minimizing other sources of itchiness ([pruritus], such as fleas, adverse food reactions, and secondary skin infections) may reduce the level of itchiness

### **POSSIBLE COMPLICATIONS**

- Secondary skin infection or inflammation of the skin due to yeast (*Malassezia dermatitis*)
- Co-existent flea-bite allergy (hypersensitivity) and/or adverse food reaction

### **EXPECTED COURSE AND PROGNOSIS**

- Not life-threatening, unless itchiness (pruritus) is not responsive to medical treatment and it is so disruptive that the result is euthanasia
- If left untreated, the degree of itchiness (pruritus) worsens and the duration of signs last longer each year of the pet's life
- Some cases may resolve spontaneously

### **Key Points**

- Atopic dermatitis is a progressive skin condition
- It rarely goes into remission and cannot be cured
- Some form of therapy may be necessary to maintain quality of life