

# Flea-Bite Hypersensitivity and Flea Control

## Basics

### OVERVIEW

- “Hypersensitivity” is an increased sensitivity or reaction in the skin due to the presence of a foreign substance; in flea-bite hypersensitivity, the foreign substance is found in flea saliva; the reaction is immune based and would be considered to be an “allergic” reaction
- “Dermatitis” is the medical term for inflammation of the skin
- “Antigens” are substances that induce sensitivity or immune response
- “Flea-bite hypersensitivity”—hypersensitivity or allergic reaction to antigens in flea saliva
- “Flea infestation”—large numbers of fleas and flea dirt are present on the pet, with or without signs of flea-allergy dermatitis
- “Flea-bite dermatitis”—inflammation of the skin due to the flea bite itself; it is not an allergic or hypersensitivity reaction, but rather an irritant response to flea bites



### GENETICS

- Flea-bite hypersensitivity—unknown inheritance pattern; more common in breeds with atopy (disease in which the pet is sensitized [or “allergic”] to substances found in the environment [such as pollen] that normally would not cause any health problems)

### SIGNALMENT/DESCRIPTION OF PET

#### Species

- Dogs
- Cats

#### Mean Age and Range

- Flea-bite hypersensitivity—rare in pets less than 6 months of age; average age range, 3–6 years, but may be seen at any age

## SIGNS/OBSERVED CHANGES IN THE PET

- Determined by the severity of the reaction and the degree of exposure to fleas (that is, seasonal or year-round)
- Itchiness (known as “pruritus”)
- Chewing and biting (“corncob nibbling”)
- Licking, primarily in the back half of the body, but may include other areas
- Signs of fleas and flea dirt; finding fleas and flea dirt is beneficial, although not essential, for the diagnosis of flea-bite hypersensitivity
- Sensitive pets require a low exposure to fleas to have an immune response and they tend to over groom, removing evidence of flea infestation, and making identification of parasites difficult
- Dogs: lesions often in the area on the back near the tail, in the back of the thighs, lower abdomen, inside the legs in the groin, and fronts of the forelegs; lesions include hair loss (known as “alopecia”); small, raised skin lesions (known as “papules”); darkened skin (known as “hyperpigmentation”); thickening and hardening of the skin, usually associated with hyperpigmentation (known as “lichenification”); “hot spots” ; scaling
- Hair loss, miliary dermatitis (skin inflammation characterized by numerous, small, crusty bumps) again over the back near the tail, and also the neck and head; barbering hair short in the back end and chronic lesions (known as “eosinophilic granuloma complex”) in cats

## CAUSES

- Fleas
- Immune response to flea saliva (flea-bite hypersensitivity or flea-allergy dermatitis)

## RISK FACTORS

- Flea-bite hypersensitivity—intermittent exposure to fleas increases likelihood of development; commonly seen in conjunction with atopy (disease in which the pet is sensitized [or “allergic”] to substances found in the environment [such as pollen] that normally would not cause any health problems)

## Treatment

### HEALTH CARE

- Outpatient treatment

## 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.

- Steroids—to decrease inflammation in the skin for symptomatic relief, while instituting flea control
- Antihistamines—little or no symptomatic relief while flea control is carried out
- Flea control on the pet; examples include dinotefuran/pyriproxyfen (monthly spot treatment; rapid acting; two products—one for cats and one for dogs; dog product contains high dose of the insecticide, permethrin, and should NOT be used on cats)
- Fipronil plus IGR (monthly spot treatment for dogs and cats, and spray treatment for dogs)
- Imidacloprid plus IGR (monthly spot treatment for cats and dogs); a second product contains permethrin and should not be used on cats; also available as a collar
- Etofenprox plus IGR is a monthly spot-on
- Indoxycarb also a monthly spot-on for dogs only; should not be used on cats
- Selamectin for dogs and cats, a monthly spot-on
- Insect growth inhibitors (IGRs) methoprine and pryriproxifen prevent maturation of insects
- Insect development inhibitors (IDIs) include lufenuron, selamectin that inhibit chitin synthesis
- Nitenpyram will kill adults, short acting oral medication
- Spinosad for monthly treatment in dogs and cats
- Afoxolaner and fluralaner is an oral product for dogs only

- Premises-targeted environmental/indoor treatment—professional exterminator or home-use fogs and premises sprays; products usually contain organophosphates, pyrethrins, and/or insect-growth regulators; apply according to manufacturer's directions; treat all areas of the house
- Etofenprox plus IGR and permethrin/pyrethrin plus IGR available as inverted aerosol sprays.
- Foggers/bombers do not effectively penetrate all areas
- Discuss all with professional exterminator
- Environmental/outdoor treatment—concentrate outdoor treatment in shaded areas; sprays usually contain pyrethroids or organophosphates and an insect-growth regulator; a product containing nematodes (*Steinernia carpocapsae*) is chemical-free
- NOTE: Always read all label instructions and follow the manufacturer's directions when using any flea-control product; ensure that the product is labeled for use on the species (dog or cat) or location (indoors or outdoors) for which you intend to apply it—for example, some products that are safe for dogs are very toxic to cats and should not be used on cats

## Follow-Up Care

### PATIENT MONITORING

- Itchiness (pruritus)—a decrease in itchiness indicates the flea infestation and/or flea-bite hypersensitivity is being controlled
- Fleas and flea dirt—absence is not always a reliable indicator of successful treatment in very sensitive pets

### PREVENTIONS AND AVOIDANCE

- Year-round warm climates and infested premises—year-round flea control is required
- Seasonally warm climates—begin flea control in May or June, as directed by your pet's veterinarian (when temperatures consistently above freezing)

### POSSIBLE COMPLICATIONS

- Secondary bacterial infections
- Sudden (acute) moist dermatitis, also known as “hot spots”
- Acral lick dermatitis (inflammation of the skin characterized by a firm, ulcerated lesion on a leg, caused by constant licking)

### EXPECTED COURSE AND PROGNOSIS

- Prognosis is good, if strict flea control is instituted

## Key Points

- Flea control is important for dogs and cats
- No cure exists for flea-bite hypersensitivity; approximately 80% of dogs with atopy, a reactivity to environmental allergens are also flea-bite allergic
- Flea-allergic pets often become more sensitive to flea bites as they age; it is important to consult package guidelines to prevent inappropriate and harmful exposure
- Controlling exposure to fleas is currently the only means of controlling signs; “allergy shots” (known as “hyposensitization”) for flea-bite hypersensitivity are not effective
- Control of fleas will prevent infestation of people with *Dipylidium caninum* and fleas may transmit cat scratch fever (*Bartonella henselae*) between cats and people