

A - Standards of Care (How I Treat) FLEA ALLERGY DERMATITIS

*Peter F. Ihrke, VMD,
Diplomate ACVD*



Professor of Dermatology, Chief
- Dermatology Service, VMTH
Department of Medicine &
Epidemiology
School of Veterinary Medicine
University of Kalifornia
One Shields Avenue
Davis, California 95616-8737,
U.S.A.

A. Introduction

- 1. Flea allergy dermatitis is not only the most common skin disease seen in general small animal practice in most countries in the world; it most likely is the most common disease of any organ system seen in small animal practice worldwide.
- 2. Somewhat surprisingly, flea allergy dermatitis still is seen relatively commonly in University dermatology clinics and dermatology specialty practice worldwide. This occurs despite modern advances in flea control plus the fact that most small animal clinicians are quite cognizant of flea allergy dermatitis and routinely manage dogs and cats with flea allergy dermatitis.
- 3. Self-referral by the owner (second opinion) or veterinary referral of dogs and cats with flea allergy dermatitis occurs for multiple reasons.
- 4. Surprisingly, when you suspect flea allergy, your most important task is convincing the owner that you are making the correct diagnosis.

B. Reasons Flea Allergy Dermatitis is seen in Dermatology Specialty Practice

- 1. Owner disbelief that flea allergy is the correct diagnosis.
- 2. Owner skepticism that flea allergy is the correct diagnosis based on management failure.
- 3. Veterinary practitioner skepticism that flea allergy is the correct diagnosis based on perceived management failure or lack of visualization of fleas.

C. Owner Disbelief in the Diagnosis of FAD

- 1. Failures in the management of flea allergy dermatitis correlate strongly with owner disbelief that fleas are the underlying problem. (“My veterinarian believes that the problem is due to fleas but I **know** that it is not!”)
- 2. Reasons for disbelief
 - a. Fleas not seen by owner
 - b. Cultural biases against having ectoparasites

- “It is not acceptable for me to have ectoparasites! - Therefore it is not acceptable for my dog to have ectoparasites!”
- c. “How can fleas cause this much trouble?”
- d. “All dogs have fleas.”

D. Owner or Veterinary Skepticism Based on Past Management Failure

- 1. Owner - “I am already doing everything that I can to kill fleas!”
- 2. We are already using the latest “wonder drugs”.

E. Reasons for Flea Allergy Dermatitis Treatment Failure

- 1. Failure to treat **all** in-contact animals (The squeaky wheel gets the oil...) In-and-out cats are a frequent cause of treatment failure in households with multiple animals. Consider regular animal visitors that are not receiving flea control.
- 2. Failure to maintain consistency in treatment
- 3. Failure to deal with environmental issues in severe cases
- 4. Substitution of prescription spot-ons with less expensive, but less effective and less safe spot-on products from pet stores

F. Clinical Features of FAD that may be useful in convincing the owner

- 1. Pruritus predominantly localized to the caudal one-half of the dog
- 2. Characteristic distribution pattern - Partially bilaterally symmetric pattern, involve the dorsal lumbosacral region, tail-base, perineum, medial, caudal thighs
- 3. Crusted papules in the umbilical fold - (especially in male dogs), an under-appreciated clinical marker for flea allergy dermatitis
- 4. Lesions - Crusted papules, secondary lesions associated with chronicity

5. Fibropruritic nodules - Highly characteristic clinical marker of flea allergy dermatitis in susceptible dogs

G. Techniques for Convincing Owners that Flea Allergy Dermatitis is the appropriate diagnosis - ("Backing into" the diagnosis as FAD)

1. How a diagnosis is made - (Lesions, distribution pattern, frequency of occurrence, ruling out other diseases)

2. Defining allergy - (Atopic dermatitis, food allergy, flea allergy)

3. Flea allergy - (Flea saliva, at least 4 different types of allergic reaction, severity of the allergic response - "Your dog is special...")

4. Drawing an imaginary line around the middle of a dog - (Does your dog itch more in front of or behind this line? Flea allergy dermatitis is the **only** known canine pruritic skin disease seen consistently with a markedly caudal distribution pattern)

5. Diffusing hostility (cultural biases) - "Fleas are a way of life in _____.", "My own dogs get fleas if I don't practice flea control consistently."

6. Owner alternatives - Expensive additional testing or trying 6 weeks of concerted flea control based on our recommendations.

7. Final gambit - Not, "Trust me." Instead - "Prove me wrong"!

H. Modern Flea Control

1. New, considerably less toxic prescription products that also are much easier to use are available that kill adult fleas and disrupt the flea life-cycle. Most insecticides can effectively kill fleas; preventing reinfestation is the problem. Insuring long-term pet owner compliance is required for on-going flea control. The comparatively recent development of both insecticides and insect growth regulators with novel and convenient dosage forms (such as spot-ons, collars, and oral products) coupled with prolonged residual activity has dramatically improved pet owner compliance and hence prevented reinfestations. Although insecticidal resistance most often is suspected when flea control measures have failed, lack of control more often results from lack of understanding of flea biology, poor application technique, and too infrequent reapplication of the products.

2. The goals of flea control should be elimination of existing fleas on affected animals, continued elimination of fleas acquired from infested premises, and the prevention of reinfestation. In order to accomplish these goals, an integrated flea control plan must be instituted. Effective

residual adulticides must be used to kill fleas plus provide residual killing activity and insect growth regulators must be used to disrupt flea reproduction. In addition, mechanical control procedures such as cleaning pet's blankets, beds, pet carriers, and throw rugs and vacuuming or removing furniture that can house pre-adult fleas must be instituted. Preventions of pests that can carry fleas (rats, opossums, squirrels, raccoons, skunks, feral cats) from entering crawl spaces, foundation vents, porches and garages also is important.

I. Modern Flea Control Products

1. New spot-on prescription products are excellent products with superior efficacy, safety, and residual activity. These products need to be applied directly to the skin, not to the haircoat. Our very strong clinical impression at UC Davis is that dogs and cats with severe flea hypersensitivity experience much better efficacy with these products applied every 3 weeks instead of monthly. Our clinical impression remains that either bathing or swimming degrades the efficacy of all of these products. Over-the-counter (OTC) competing products commonly are advertised as 'just as good as what you can get from your veterinarian' but 'less expensive'. In general, these products contain concentrated permethrin or other synthetic pyrethroids. All indications are that these OTC products do not have either the efficacy, residual activity, or the safety profile of the spot-on prescription products

2. Imidacloprid (Advantage®, Bayer)

a. Advantages - larvicidal on the animal and kills/debilitates adult fleas on contact, ease of application

b. Disadvantages - does not have repellent action, diminished efficacy after bathing or swimming, does not have activity against ticks, occasional application site reactions

c. Bottom-line - Good narrow-spectrum product for fleas

(Canada - Imidacloprid & Moxidectin - Advantage Multi®, Bayer)

(Europe - Imidacloprid & Moxidectin - Advocate®, Bayer)

3. Fipronil & S-Methoprene (Frontline® Plus, Merial), Fipronil (Frontline® Spray, Merial)

a. Advantages - kills adult fleas, disrupts flea life cycle, ease of application, kills ticks, spray - rapid dispersion and coverage,

b. Disadvantages - does not have repellent action, some diminished efficacy after bathing or swimming, occasional application site

reactions, spray is labor-intensive
c. Bottom-line – Good broader spectrum product

4. Imidacloprid & 44% permethrin (Advantix®, Bayer)

- a. Advantages – larvicidal on the animal and kills/debilitates adult fleas on contact, interrupts flea life cycle, repellant ‘flushing’ activity of permethrin, ease of application, also kills ticks and mosquitoes
- b. Disadvantages – dog only product, do not use on cats, diminished efficacy after bathing or swimming, occasional application site reactions?
- c. Bottom-line – Good broader spectrum product, dog only product

5. Selamectin (Revolution® [USA]; Stronghold® [Europe], Pfizer)

- a. Advantages – broad spectrum against many internal and external parasites, kills adult fleas plus larvae and eggs, kills ticks, kills some ectoparasitic mites (Sarcoptes, Notoedres, Cheyletiella, Otodectes), ease of application,
- b. Disadvantages – does not have repellent action, diminished efficacy after bathing or swimming, slower efficacy?, application site reactions?
- c. Bottom-line – Good broader spectrum product

6. Nitenpyram (Capstar™, Novartis)

- a. Advantages – very rapid response with visual results, kills 100% of adult fleas within 6 hours, short-acting, ease of oral administration, give every 24-72 hours (half-life in dogs is 2.8 hours, half-life in cats is 7.7 hours) very safe product, adverse reactions not seen yet
- b. Disadvantages – does not have repellent action, does not disrupt flea life cycle, short-acting, does not have activity against ticks
- c. Bottom-line – Good narrow spectrum product, use with spot-ons initially for rapid response, not for use as sole therapy, use in dogs requiring frequent shampooing, compliance problems?

7. Lufenuron (Program®, Novartis; Sentinel® [lufenuron + milbemycin oxime])

- a. Advantages – oral product, very safe product without known mammalian toxicity, adverse reactions not seen yet,
- b. Disadvantages – does not kill adult fleas or pupa, time lag – 60-90 days required to disrupt flea life cycle, does not have repellent action, adult flea must feed on animal to ingest, does

not have activity against ticks, must give with food

- c. Bottom-line – use with spot-ons for long-term control, not for use as sole therapy unless very closed environment, treat all animals, use in dogs requiring frequent shampooing, compliance problems?

8. Pyriproxifen (Nylar®) containing collars – Pyriproxifen & amitraz collars (Preventic PLUS®, Virbac), dogs only!, no longer available in the USA

Pyriproxifen & 2% permethrin (KnockOut® Collar for Dogs, Virbac), no longer available in the USA

Pyriproxifen (KnockOut® Cat & Kitten Collar for Dogs, Virbac), no longer available in the USA

- a. Advantages – ovicidal and larvicidal for fleas, UV stable juvenile hormone analogue, translocates to bedding, IGR efficacy for 3 months, Preventic Plus® adds tick protection
- b. Disadvantages – long-term residual status may affect beneficial insects
- c. Bottom-line – very useful adjunct to spot-ons or spray products, useful in dogs requiring frequent shampooing

9. Synthetic pyrethroid containing pump sprays (variety of manufacturers)

- a. Advantages – daily use in dogs requiring frequent shampooing
- b. Disadvantages – frequency of application, compliance, poor residual activity
- c. Bottom-line – rarely used as sole therapy unless very closed environment, use in dogs requiring frequent shampooing, compliance problems?

J. Personal Recommendations

1. Flea control must be regionalized and often personalized based on severity of possible infestation in your locale, number of dogs and cats in the environment, indoor/outdoor/run free status, infested pests and strays in the environment, finances of the owner, and severity of disease vs. magnitude of the infestation
2. ‘The average dog or cat’ will respond to fipronil and S-methoprene, imidacloprid with or without lufenuron, or selamectin as sole therapy.
3. Severely flea allergic dogs will require fipronil and S-methoprene or imidacloprid plus permethrin, plus either nitenpyram, with or without lufenuron.
4. (Severely flea allergic cats will require spot-on preparations plus nitenpyram with or without

lufenuron. Pump-sprays also may be beneficial.)

5. Animals with tick exposure benefit from fipronil and S-methoprene, imidacloprid plus permethrin (dogs only!), and pyriproxifen & amitraz collars (dogs only!)

K. Suggested Readings

Rust MK. Advances in the control of *Ctenocephalides felis* (cat flea) on cats and dogs. *Trends Parasitol.* 2005; 21:232-236.

Rust MK, Dryden M. The biology, ecology, and management of the cat flea. *Ann Rev Entomol.* 1997; 42:451-473.

Scott DW, Miller WH & Griffin CE. (2001) *Muller & Kirk's Small Animal Dermatology*, 6th edn. pp. 476-484, WB Saunders Co, Philadelphia: WB Saunders Co, 2001; 476-484.

Carlotti DN, Jacobs DE. Therapy, control and prevention of flea allergy dermatitis in dogs and cats. *Vet Dermatol.* 2000; 83-98.

Ihrke PJ: Flea allergy dermatitis: Convincing the owner! *Proceedings of the 15th Annual George H. Muller Veterinary Dermatology Seminar in Hawaii, Kohala, Hawaii, Kauai*, 1999.