

CLINICAL KNOWLEDGE INSIGHTS**ALLERGIC DERMATOSES****FOOD ALLERGY (CARF) – CANINE**

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- Known as Food Allergy, Cutaneous Adverse Reaction to Food (CARF) in dogs
- Non-seasonal pruritic allergic skin disease associated with ingestion of offending allergen in pet's diet (the most frequently fed ingredients)
- Usually non-life threatening, unlike in humans who may die if consume a food allergen
- Exact pathogenesis in the dog is not completely understood; may include a variety of immunological reactions (Type I, Type III, and/or Type IV)
- An abnormal immunologic reaction, most often to food glycoprotein - usually heat stable, water soluble 10-70 kDal in size
- Often diagnosed in conjunction with atopic dermatitis (AD) in the dog (not exclusive of AD)
- The third most common allergic disease in the dog (10-15%) after flea allergy dermatitis and atopic dermatitis

WHAT DOES IT LOOK LIKE?

- No age or sex predilection, but many cases begin at less than 1 year of age, and more common than AD in dogs younger than 6 months
- Any breed can be affected but reported predisposed breeds include: American cocker spaniel, English springer spaniel, Labrador retriever, collie, miniature schnauzer, Chinese shar pei, poodle, West Highland white terrier, boxer, dachshund, Dalmatian, Lhasa apso, German shepherd dog, Rhodesian ridgeback, pug, and golden retriever
- Distribution of clinical signs are similar to AD – face, ears, axillae, inguinal area, abdomen; pattern with pruritus of mainly ears and perineal area (“ears and rears”) is often attributed to CARF (24%)
- Concurrent gastrointestinal signs – 10-30%; flatulence and increased frequency of defecation occur more commonly than vomiting or diarrhea
- Recurrent secondary staphylococcal (pruritic or non-pruritic) dermatitis and yeast (*Malassezia*) infections can occur
- Rarely, vasculitis, urticaria and erythema multiforme

PATHOLOGIC IMAGE LIBRARY : FOOD ALLERGY (CARF) – CANINE



Excoriations on the ear and face of a food allergic dog with moist secondary pyoderma



Hair loss secondary to food allergy
(Courtesy: Dr. WH Miller)



Hair loss secondary to food allergy



CARF that mimics severe flea allergy dermatitis with secondary *Malassezia* and staphylococcal colonization



Bulldog with generalized erythema and dermatitis due to a CARF

WHAT ELSE LOOKS LIKE THIS?

- Atopic dermatitis (non-seasonal)
- Sarcoptic mange
- Staphylococcal / *Malassezia* infections
- Cheyletiellosis
- Dermatophytosis
- Flea allergy dermatitis

HOW DO I DIAGNOSE IT?

- The only accurate method of diagnosis is a food trial that lasts up to 12 weeks during which time the pet's clinical signs resolve (followed by recurrence of signs upon provocation—see below)
- This diet can be home-cooked or carefully selected prescription prepared food
- There is insufficient evidence that blood or skin testing for food allergies is diagnostic
- Ingredients must be novel proteins for the pet or hydrolyzed proteins (proteins broken down to peptides smaller than 10kDa)
- All treats, chewable medications (including parasite preventatives and NSAIDs) must be replaced with non-flavored versions or topical therapy where appropriate
- If pruritus resolves with the trial, a food challenge (provocation for up to two weeks) should be done to confirm the offending protein. This can be done with the initial diet, with ingredients from that diet, or specific treats. Once the offending protein is identified, avoiding its ingestion is the goal of long-term management.

HOW DO I MANAGE IT?

- Once it is determined that the dermatitis is due to a reaction to something the pet has been fed, avoiding its ingestion is the goal of long-term management.
- Pruritus associated with CARFs generally has partial to no response to treatment with corticosteroids and/or cyclosporine (some animals show a partial response and then relapse when dose is tapered)

COMMENTS

- Cross-reactions may occur among foods within a food group (e.g., beef and venison) and also between food allergens and other allergens (e.g., milk and beef; crustaceans and cockroaches; birch

pollen may cross-react with a variety of fruits and vegetables) Beef has been reported as the most common reactant in dogs, followed by soy, chicken, milk, corn, wheat and eggs

- Hydrolyzed diets may work best for dogs with immediate (Type I) hypersensitivity reactions and may not work for dogs with delayed CARF
- More than one elimination diet trial may be required to diagnose a CARF
- If a home-cooked diet is used long-term consultation with a nutritionist is necessary to ensure the diet is nutritionally adequate for the patient

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