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Allergic Disease of the Skin

Disclaimer:

Allergic disease manifesting itself in the form of skin problems is frustrating! But take heart, IT IS TREATABLE!!! So first, take a deep breath, and accept the unfortunate truth that allergic disease *is not curable*. However, with the help of your veterinarian working together, it *can be manageable*.

What is allergic disease?

There can be many names for the problems that allergic disease causes: atopy, atopic dermatitis, food adverse reactions, and food hypersensitivity. *Atopic dermatitis* (atopy) is an inherited predisposition to develop allergic symptoms after repeated exposure to some otherwise harmless substance (an "allergen") such as dust, dust mites, grasses, or pollen. Most dogs begin to show their allergic signs between 1 and 3 years of age. A few dogs may show clinical symptoms as early as 6 months of age. It is also unusual to see clinical symptoms start after 7 years of age. Because the hereditary nature of the disease, several breeds, including Golden Retrievers, Labrador Retrievers, most Terriers, Irish and English Setters, Lhasa Apsos, Dalmatians, Bulldogs, Beagles, Miniature Schnauzers, Pugs, Boxers, American Cocker Spaniels, and Chinese Shar Peis are more commonly atopic.

Although the majority of allergic disease is environmental in origin, food can account for 10-20% of allergic cases, and sometimes be a component of a multi-faceted disorder.

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What are the symptoms of allergic disease?

Atopic animals usually rub, lick, chew, bite, or scratch at their feet, muzzle, ears, armpits, or groin. Itching can be localized (one area) or generalized (all over the body) causing hair loss and reddening and thickening of the skin. There may be flaking of the skin (somewhat like dandruff). Sometimes the coat can take on a foul odor due to abnormalities of the oil producing glands of the skin. In yet another common occurrence, a focal area of moist dermatitis called a “hot spot” seems to pop up overnight and cause intense itching, redness, pain, and pus. Another group of symptoms involves the respiratory system with coughing, sneezing, and/or wheezing. Sometimes, there may be runny discharge from eyes or nose. The third manifestation involves the digestive system, and the dog may vomit or have diarrhea.

What causes allergies?

An allergy is a state of *over-reactivity or hypersensitivity* of the immune system of a pet to a particular substance called an ‘allergen’. Most allergens are proteins. The allergen protein may be of insect, plant or animal origin. It can be something ingested or something exposed to the skin.

What is important to note is that it is NOT the first exposure that causes the adverse reaction! At the first exposure the body produces *antibodies* to the substance. Then, at the next exposure and subsequent exposures, the body’s own antibodies react against the substance, causing the release of histamine and a cascade effect of inflammation (which can lead to the redness, pain, swelling, or discharge). This inflammatory response leads to a break in the natural skin barrier and the “normal flora” of bacteria and yeast that live on the skins surface penetrate under the skin and cause infection. This further exacerbates the problem of the itching and inflammation, and the cycle gets worse. The more the body gets exposed to the substance, the more antibodies are created which leads to a more aggressive inflammatory response. This is why allergies tend to get worse over time. This is also why pets often begin with seasonal symptoms (such as only in the summertime) and then progress to year round.

How is the diagnosis made?

Because there no simple test to determine whether your pet has allergic disease, it is *often a diagnosis of exclusion*. There are also a number of other causes that could be contributing to the assumed allergic symptoms. This means that there are a number of things that need to be ruled out before it can be ascertained that allergies alone are causing the problem.

Commonly run tests:

1. Biochemistry panel- to identify any underlying health issues that may be contributing to illness and/or a compromised immune system.
2. Thyroid panel- to rule out hypothyroidism. The thyroid gland controls metabolism and thus can affect rate of turnover of skin cells. Hypothyroidism can manifest itself as skin problems because the body's natural barrier is compromised, allowing normal skin inhabitants such as bacteria and yeast to penetrate deeper and lead to infections and inflammation.
3. Skin scrapings and/or impression smears- These tests are used to determine the types of cells, bacteria, yeast, or parasites, which may be contributing to the allergic signs.

Once parasites, hypothyroidism, or other systemic illnesses are ruled out, there are more specific tests that can be run. The purpose of the tests below is to begin *immunotherapy*, or allergy shots. If you do not want to pursue allergy shot treatment, you should NOT run these tests.

1. Blood test for specific allergens (Greer Allerg Complete). A blood sample is taken at your regular veterinarian can look for antibodies in the blood to specific allergens, including indoor and outdoor allergens, as well as cat dander.
2. Intradermal skin testing is performed by a veterinary dermatologist. One very important thing to consider is that your animal must be off of all steroid medication ONE MONTH prior to intradermal testing. It is therefore important to plan ahead for this and try to make an appointment in the winter months when your pet's allergic signs are less severe. This test is able to test for food allergens.

Therapies utilized in allergic disease:

1. Flea and mite preventions. VERY IMPORTANT!!! Flea bite hypersensitivity is a common cause of itching and inflammation of the skin. Also, mite infestations (aka mange, scabies) can cause itching and inflammatory changes to the skin. Making sure your pet is on preventative therapy for these types of infestations is an easy way to control and rule out these problems.
 - a. Revolution: Once a month topical protects against fleas, heartworm, and mites (in dogs).
 - b. Frontline: Once a month topical protects against fleas and ticks.
2. Fatty acid supplements. The proper ratio of omega 3:omega 6 fatty acids in high doses have been shown clinically to improve the skin and coat and decrease severity of allergic disease.
 - a. 3V Caps: Recommend 40-80mg/kg per day.
 - b. Flax Seed Oil: 1 tsp or 5ml/25kg body weight.
 - c. 30-40 mg/kg per day combo of EPA (eicosapentaenoic acid), DHA (docosahexanoic acid) and GLA (gamma linoleic acid).

Because the fatty acids need to be incorporated into cell membranes, benefits may not be seen for 4-8 weeks.

3. Antihistamines. These produce benefits in about 30-40% of atopic dogs. However, effects vary with individuals and one cannot generally predict which, if any, will be of help to a given individual. Therefore, we recommend trying several different antihistamines for a period of at least 2-3 weeks to observe any degree of benefit. (1 lb = 2.2 kg)
 - a. Benedryl (diphenhydramine): dose = 1mg/lb of body weight twice daily.
 - b. Hydroxyzine: 1mg/lb twice daily.
 - c. Doxepin HCl: 3-5 mg/kg twice daily.
 - d. Amitriptyline: 1-2 mg/kg twice daily.
 - e. Clemastine (Tavist): 0.5-1 mg/kg twice daily.
 - f. Loratadine (Claritin): 0.25-0.5 mg/kg ONCE daily.
 - g. Cetirizine (Zyrtec): 0.5-1 mg/kg 1-2 times a day.
4. Shampoos, Crème Rinses and Leave-On Conditioners. Shampoos are beneficial because they assist in the removal of surface allergen on the skin before absorption under the skin takes place. They may contain oatmeal, aloe vera, or other anti-itch chemicals such as pramoxine, diphenhydramine, hydrocortisone or triamcinolone. Shampoo therapy is unfortunately limited due to the removal of the product in the rinsing phase of the bath. Rinses and leave-on conditioners may be more effective because they provide a *residual effect*. These products may contain colloidal oatmeal,

anti-itch chemicals such as analgesics, an antihistamine or glucocorticoids. Their attribute is toward decreasing the need for systemic therapy specifically avoiding increased dependency of glucocorticoids. It is most important that your pet be *bathed in cool water* because warm/hot water increases the itch sensation.

5. Diet trial with a Hypoallergenic/Novel Protein Diet. A component of food allergy can contribute significantly to a dog's allergic symptoms. The 3 most common allergic food sources are beef, dairy and poultry. Novel protein diets are made with only ONE protein source, usually something your pet has not been exposed to before (and therefore should not be an allergic stimulus), such as duck, whitefish, venison, or rabbit. Some diets even have kangaroo! Other prescription diets chop up the proteins into such tiny pieces that the immune system is not able to recognize them (Hills' z/d).

Important points to remember during the diet trial:

- i. Full beneficial effects may not be seen for 1-2 months. It is therefore important to continue the diet trial for at least 6-8 weeks.
- ii. NO TREATS!!! NO OTHER FOOD SOURCES can be offered during this time. If you want to offer your dog a reward, simply set aside some of his kibble/food you are using for the diet trial as a treat. There are also hypoallergenic treats that can be purchased through your veterinarian.