

# **COMMON SKIN DISEASES OF THE DOG ALLERGIES**

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## **INTRODUCTION**

Allergic diseases of the dog most often involve the skin rather than the respiratory system as is seen in man. Allergies are caused by a complex chain of events in the immune system, and even today, we do not understand all of the trigger factors. Genetics, as in man, appear to play a role in certain types of allergies. The immune system in allergies over-reacts to exposure to allergens in the environment. These allergens can be proteins from pollens, plants, insects, or foods.

## **TYPES OF ALLERGIES**

It is perhaps easiest to consider that an allergic animal may have one or more types of allergies and that, in the broad sense, there are four different types:

### **1. Atopic dermatitis or Atopy**

We used to believe that in atopy the allergens were breathed into the respiratory system, such as in hay fever in man. Now, there are many veterinary dermatologists who believe that there may be a combination of allergen exposure both by inhalation and by contact of the pollens or dust mites with the skin. This is a common problem in dogs, especially certain breeds like terriers and retrievers. We will discuss this in more depth.

### **2. Flea allergy dermatitis**

This is common and occurs when a dog is exquisitely sensitive to the bite of one flea. Dogs with flea allergy usually chew the back half of their bodies often almost hairless. They have a higher incidence of hot spots and usually it is very difficult to find fleas on these pets because, they immediately ingest the flea that bites them because they are so sensitive to their bite. We now have many good medical management techniques for canine flea allergy. It is important to remember that a high percentage of dogs with atopy also have flea allergy.

### **3. Food allergy and/or food intolerance**

We do not know what percentage of dogs truly have immune reactions to foods. There are other types of adverse reactions to foods that are not allergy but still result in skin signs. We do not have a good way to separate these and at this point, it is just

important to identify which dogs have adverse food reactions and to get them on the right diets to prevent signs. Dogs with adverse food reactions may have dermatologic signs or gastrointestinal signs or both. There is no good diagnostic test for this condition. No blood or skin test is especially helpful. The best test is to place the dog on a very special hypoallergenic diet and watch for improvement. The numbers of cases are likely not high, and thus we will not discuss this type of allergy in detail.

#### **4. Contact allergy**

The best way to understand this is to think about poison ivy in people. Poison ivy is a type of allergy to the plant and most of the human population becomes allergic to poison ivy if they are exposed in their lifetime. It is the result of a different kind of immune reaction. Another example of human contact allergy is that which occurs to metals, and the reason that many people cannot wear certain kinds of jewelry without getting a rash. For a long time, dermatologist believed that contact allergy was rare in the dog because they were covered with hair and protected. We know that dogs do not get poison ivy, even though they can transfer it from their hair coat to the owners who then may get it. However, dogs do have reactions to other plants in their environments. Some of these can be very troublesome to the pet.

### **MAJOR COMPLICATIONS OF ALLERGIES**

In addition to the primary symptoms noted with allergic diseases in the dog, often times the signs are made worse by secondary infection. There seems to be a strong association of allergic skin disease in dogs with predisposition to two types of skin infections. These infections will often be recurrent and can cause symptoms as bad or worse than the allergies alone. It is imperative that the veterinarian and owner work to sort out the signs of these secondary infections and deal with them as well as addressing the allergies.

#### **1. Staphylococcal infections**

These are among the most common infections seen with allergies. These staphylococcal infections are not contagious between dogs or between owner and dog. Signs include pustules and rashes, hot spots, spotty areas of hair loss and often worsening itch. Common anatomic locations include the belly or groin region, the dorsal trunk and feet and ears. Before trying to treat the allergy or better characterize it, it is important to see how much of the clinical signs are due to secondary bacterial infection. To diagnose staphylococcal infection it is not usually necessary to do a culture, but rather some simple cytology from the skin (scraping, tape prep or impression) and see if the animal responds to oral antibiotics. Topical therapy alone is not usually sufficient for treatment and the duration of oral antibiotics must be a minimum of three weeks before re-evaluation.

#### **2. Yeast infections**

These are also common secondarily to allergic skin disease. They are especially prevalent in the southeast where the high humidity and high temperatures are optimum for yeast infections. The yeast infections that affect dogs are not the same as those that affect people and they are not the result of chronic antibiotic

administration, like that which can occur in man. Yeast likes to grow where the skin is greasy and especially moist like areas which we call intertriginous areas where the skin falls in folds or rubs together. Therefore, yeast infections occur most often in the neck fold, the axilla, the area around the lips, the ears, and between the toes. Yeast can cause severe itch in allergic dogs, even when the infection is not severe. Some dermatologist treat this with topical therapy first and then if it does not respond and can still be found on cytology, they will use oral drugs like ketoconazole or itraconazole. Many shampoos will kill yeast, but the skin may become repopulated; hence the need for two to three weeks of oral therapy to help everyone to decide how much of the itch and other signs in the dog are due to secondary yeast infection.

### **3. Combination infections**

When these occur, we may treat both or we may treat the one that is present in highest quantity first and then re-evaluate the patient.

## **TWO MAJOR CANINE ALLERGIES FOR DISCUSSION:**

### **1. Atopy or Atopic Dermatitis**

#### **▪ Clinical Signs and Patient Descriptions**

Most cases of atopy begin when the dog is between one and three years of age. This is highly variable, but when we see itching in dogs less than one year of age, we put other possibilities higher on the list. There are breeds that are predisposed, and this varies throughout the country as it appears that genetics play a role. The exact genetics are unknown, and when an atopic dog is bred to an atopic dog, not all of the puppies develop allergy. There are many factors that likely complicate the exact initiation and continuation of allergy in all species. Some breeds that are over-represented include the terriers, the Chinese Shar-Pei, Retrievers, Bulldogs and other brachiocephalic breeds. But remember that any breed of dog can develop atopy, even mixed breeds.

The clinical signs are highly variable but involve itching (pruritus). The itching may be generalized or it may be especially common in the axilla, the face, ears, and foot chewing. Licking may be present as well as scratching and self-trauma. There has been a long debate amongst dermatologists as to whether there is a primary eruption, like a rash, in this kind of allergy or whether the rash is due to secondary self-trauma or infection. So you will hear dermatologists talk about the “itch that rashes” or the “rash that itches”. Initially the signs are responsive usually to corticosteroids, but as the dog gets older and more drug therapy is used, and as secondary infections occur, steroids become less effective. At best they are symptomatic treatment, and do not eliminate the allergy.

- Diagnosis of Atopy  
Most initial diagnoses are made by the appearance of the clinical signs. Further identification of the substances to which the dog is allergic (allergens) can be determined by two methods of allergy testing. One is the intradermal skin test in which many needles are pricked very superficially into the skin and the area examined 15 minutes later for hive-like reactions. This is considered the Gold Standard for diagnosis. An easier way, but argued by some to be less accurate, to test for allergy is with a serum (blood) test which is sent away for a RAST or ELISA blood allergy testing. Then therapy options can be considered. There are some problems with the blood testing for allergies. It is CRITICAL that the veterinarian rule out other problems and be very certain of the diagnosis of atopy before doing the blood tests. They are positive in many normal dogs and only mean that the dog has been exposed to the antigen (allergen) and has developed circulating antibodies against it. It does not mean that these antibodies are causing the signs one sees. Also, the levels of antibodies in the blood may not be proportional to those in the skin, so a blood test may not be as accurate. We also know that blood testing does not seem to be an effective test for food allergy.
  
- Treatment of Atopy  
There are many methods from avoidance (which is almost impossible) to antihistamines, fatty acids, topicals, corticosteroids, and immunotherapy. Immunotherapy is when the owner or veterinarian gives the dog shots of the substances to which he is allergic. This is similar to people taking allergy shots. This is effective in approximately half of the cases of well-characterized allergic disease. In the near future, it is likely that there will be new ways to alter the immune system in the management of this condition.

## 2. Contact Allergy

- Clinical Signs  
Although for a long time, we considered this an uncommon condition in the dog, we now know that in the southeastern US, there are cases of contact allergy that go undiagnosed. This is partly because it can be very difficult to diagnose. Most dogs have foot chewing, especially the bottom of their feet, with redness, and even ulcerations as a major clinical sign. This is because they get sensitized while walking on some substance. They may also have problems around the rump, ventral abdomen and many dogs transfer the allergen to the region around the mouth as they chew their feet. They then develop a rash there. This disease does indeed have a rash as the primary clinical sign and it usually affects the lightly haired areas first, unless it is a reaction of a shampoo or spray of some kind that is spread over the animal.

One of the more common contact allergy reactions we see in Florida is to plants which are from the *Commelinaceae* family. These go by the name of doveweed and dayflower and have little white or purple flowers. They are commonly seen growing intermixed in St. Augustine sod from sod farms; hence we see it often from new suburban development areas with professional landscaping. It may require a diligent examination to find it as it tends to grow under the wider leaves of the grass. These two plants as well as the Wandering Jew plant (*Tradescantia*) seem to affect dogs like poison ivy affects man. These plants do not cause problems in people, and usually will not affect all of the dogs in the household.

- Diagnosis

This is one of the reasons that this condition is uncommonly diagnosed. There is no easy test for it. There are two major methods used to prove contact allergy. One is to remove the dog from the suspected allergen for two weeks. This should be preceded by a hypoallergenic shampoo to remove any residual contactant. This may mean kenneling the dog for two weeks which results in many other changes. The second method is what is known as a patch test. This is easier to do even in young children than in dogs. Patches with suspect plants or chemicals are placed on clipped skin and must be held in place for 48 hrs. This is the difficult part because dogs chew or scratch the patches off and the skin of the dog is so loose that the bandaged areas may easily slide forward or backward or if they really stick, an irritant reaction to the tape may be noted. The sites are examined shortly after patch removal and then again at 24 hrs. but the dog cannot be allowed to traumatize the region. For those of you who have had poison ivy yourselves, you know how hard it is to keep from scratching and a dog can't understand this.

- Treatment

The management of contact allergy is best done by avoidance of the allergen, as with poison ivy in people. Every time the dog comes in contact with the substance, the reaction is likely to worsen. There are steroids which are used in severe cases to relieve the inflammation but these are not good long term solutions. There are some types of mechanical coverings which may be helpful (booties, etc). Pre-exposure treatment with the drug, pentoxifyline (Trental®) can be helpful in some dogs if it is known that they are going to an area where they will be exposed.

The most difficult part of managing contact allergy is that it is a lifetime commitment from the owners, as it is unlikely the dog will “outgrow” the reaction or improve over time. Some owners have resorted to making concrete or rock kennels in their yards or even using Astroturf if the problem is a grass or weed. The common plants that cause this reactivity in the dog are very difficult to eliminate from your yard, and in some cases, clients have literally killed the grass and the weed has thrived.

## **SUMMARY**

I have only briefly discussed allergic disease in the dog, secondary complications and elaborated on two of the four kinds of allergic diseases that we see. Although many new antihistamines have been developed for allergy treatment in man, especially for hay fever signs, it appears that the chemical mediators that cause the symptoms we see in the dog are not histamines, and this explains why antihistamines are not that effective. It is exciting to see that there are many investigators of human allergy looking at other ways to alter the allergic response in man, not just with antihistamines. We can be hopeful that one of these means may be beneficial in the future management of canine allergic diseases.