Allergic Dermatitis: A Dilemma Getting Easier

Douglas J. DeBoer, DVM, Dipломate ACVD
School of Veterinary Medicine, University of Wisconsin
Madison, Wisconsin

Part I of this article discussed clinical diagnosis of atopic dermatitis. In this second part we will focus on serologic allergy testing - when to test, how to use the results, pitfalls in testing, and recent improvements in these tests.

Part II. Serologic Testing in Allergic Skin Disease

The major reason to perform an allergy test of any type is NOT to diagnose atopic dermatitis (AD). The reason for testing is to allow the clinician to select allergens for use in allergen-specific immunotherapy...period! Identifying the specific allergens to which a patient is sensitive may also enable the owner to pay closer attention to environmental factors that contribute to allergen exposure. Above all, remember that no allergy test is perfect!

Considerations in Allergy Testing. In human beings, the results of allergy testing can vary throughout the seasons; there is limited evidence that the same is true for dogs, particularly with serum testing. This is not true with every dog, in every situation, in every region of the country. However, if you have to choose a time to allergy test, the best time is typically just after the pet has been exposed to every pollen and dust allergen for that season. In cold-weather areas, this means that allergy testing is often best done in the late summer to fall, just after everything is done pollinating. In this case, the allergic response may be maximally active. To repeat and be clear, though - this seasonal variation is not present in every patient, and fall is often though not always best.

IDT. Intradermal testing (IDT) is the allergy testing method of choice for many specialists. IDT has the advantage that it is a biological method that in some ways mimics the pathogenetic mechanism of the actual disease. A positive intradermal test requires not only presence of specific IgE antibody, but functional mast cells and microvascular response. With the notable exception of house dust mite allergen, intradermal testing appears to be relatively free from positive reactions in nonallergic dogs. It is also considered by some authorities to be more sensitive than serum-based methods. There are important drawbacks to IDT, the most obvious of which

(Continued on page 2)
are its requirement for referral and for discontinuation of some treatments (corticosteroids, antihistamines) for weeks to months prior to the test.

**Serology.** Allergen-specific IgE serology (“serum allergy testing”) is increasingly used both by specialists and by general practitioners. When done reliably and used properly, these tests are very valuable tools to use in formulating an immunotherapy prescription. These are “IgE Tests” – they measure only the amount of allergen-specific IgE present in the serum, and not whether this IgE is functioning to cause an allergic reaction in a pet. Serology is convenient and accessible, but in some cases seems to lack specificity: with this test, a problem may be “false positive” reactions. Some people call these “clinically insignificant true positives” because the animal may actually have serum IgE against one or more allergens, but without clinical significance. One strong advantage of the serum allergy tests is that they are unaffected, or at least less affected, by therapy. Antihistamines, cyclosporin (Atopica) and oclacitinib (Apoquel) do not appear to affect serum allergy test results. It is likely that corticosteroids also affect the tests minimally, though some laboratories recommend steroid withdrawal if possible.

**Which Test is Best?** Both IDT and serologic testing can be used to pinpoint the best allergens to include in an allergy shot or allergy drop mixture. In fact, studies of response rates to immunotherapy have concluded that the response rates to allergy shots is about the same using either test – roughly 2/3 of dogs benefit from allergy shots, no matter which test is used.

**Why Test at All?** One recently-marketed approach advocates skipping allergy testing entirely. Instead, all dogs (regardless of their actual allergic sensitivities) are treated with a standard mixture of allergens that are common in the region. In this case, some dogs will clearly be treated with allergens that they are not allergic to, and others may be missing allergens that are important for them. Though this may result in a lower total cost to the owner, the approach is controversial amongst dermatologists. This author’s opinion is that evidence favors use of allergen-specific immunotherapy based on testing, rather than this ‘nonspecific’ or ‘regionally-specific’ concept. If owners are to commit to the time and expense of a year or more of allergy shots or drops, I’d like to see the best possible chance of success, even if it costs a little more to test at the beginning. If the cost of allergy testing is a barrier for the owner, my solution is to lower the cost of testing – see later in this article for more comment on this!

**Using the Results of Serum Allergy Testing**

**Interpretation of Results.** Upon receiving the results of a serum allergy test panel, the next step is for the clinician to decide which mixture of allergens would be ideal for formulation into allergy shots or drops. This is part art and part science, and is based on factors such as botanical relationships of plant pollens, potential exposure of the patient, and perhaps even the degree of test reactivity. Fortunately, testing companies are adept at considering these factors, and typically provide a suggested therapy mixture along with the test results. The clinician should, however, always consider the test results and suggested therapy mixture in light of the patient’s clinical picture. Here are some things to consider:

- Do the test results make sense, considering the seasonality of the patient’s signs? For example, if the patient has year-round itch but the test panel shows positive reactions only to seasonal pollens, something is missing. Could the patient have a concurrent food allergy that is responsible for keeping the itch going over the winter? If so, obviously, allergy shots may provide little help. To repeat: *always ask yourself if the test results*
make sense with the clinical picture. If they don’t, contact the laboratory’s technical service staff...these people are experts who may be able to help you solve the riddle.

• Monosensitization (allergy to only one thing) is fairly common with dust and storage mites, and mite allergy only can cause substantial year-round discomfort. However, allergy to only one or two pollens is unusual, and if you see this pattern on the test caution - these may not be significant, or at least they may not tell the whole story.

• If you do receive a test result that doesn’t seem to make sense with the patient’s clinical picture, don’t immediately proceed with immunotherapy without considering other possibilities. For example, make sure you’ve done a diet trial – could there be concurrent food allergy? If things really don’t make sense, is it possible to do an IDT to confirm suspicious or unusual results?

• Make sure your laboratory is testing for allergy to fungi, and always include testing for *Malassezia* yeast. Though mold spore allergy is less common in the upper Midwest than in some regions of the USA, yeast allergy is very common, and can be an important source of discomfort for pets. If the pet is positive for *Malassezia*, make sure you have tried oral and/or topical antifungal treatments. Especially if such treatments benefit the pet, consider including *Malassezia* yeast extract in the pet’s immunotherapy prescription.

All-Negative Test Results. In the past, an occasional issue with serologic tests has been the finding of all-negative test results in a patient with very clear clinical signs consistent with allergy. This issue is fortunately becoming less of a problem with increased sensitivity of these tests. However, it’s important to understand (and to explain to owners) that allergen-specific IgE panels are occasionally negative in dogs with allergy – this is to be expected; it’s the way the test and the disease work. Though there are many potential reasons for this situation, in practical terms here are the most common solutions:

• Some dogs below a year of age may have negative tests. If this occurs, one solution is to repeat the test in one year (i.e., end of the next allergy season).

• The dog may be having seasonal variation in test results. In adult dogs with a negative panel, consider repeating the test in 6 months (which would be a different part of the season).

• Some allergic dogs will never have positive results. In this situation, if the owner is very intent on treatment with allergy shots or drops, consider referral for an IDT. In a few cases, IDT may pick up sensitivities when serology does not.

Food Allergen Specific IgE. One general comment that can be made about ALL serum-based methodologies (and, indeed IDT as well) is that studies have concluded that these tests are very poor choices for diagnosing food allergy, and really should not be used for this purpose. Even in humans, they are not very sensitive or specific. As just one example, we know that food allergy does NOT always involve IgE-mediated processes. Therefore, even if we did have a perfect “IgE test” for food allergens (which we do not), this test would still be inaccurate for use in diagnosing food allergy. Dermatologists agree, and published studies confirm, the only way to definitively diagnose food allergy is with a carefully-conducted dietary restriction-provocation trial (“hypoallergenic diet trial“). Some authorities argue that in some cases, a food allergen-specific IgE test may have limited value in selection of the appropriate hypoallergenic trial diet, though even this is controversial.
Recent Improvements in Serologic Testing

Science never stands still, and allergy testing is no exception. Recent versions of serologic tests are more sensitive than in the past, thus helping to eliminate the problem of the “all-negative” allergy panel. In addition, laboratories are starting to offer testing for greater numbers of allergens, which may help further to pinpoint the problem.

Perhaps the best news for owners is that, with improvements in technology, the cost of testing is falling. Different laboratories are offering different ways for you to provide financial incentive for your clients to do testing and immunotherapy. In some cases, labs will offer a ‘mini screening panel’ for a low initial cost; these screening tests do not tell you exactly what the patient is allergic to, but will give you a general idea (pollens, indoor allergens, etc.), provide incentive for the owner to continue on to do the full allergy panel, and also indicate that the required full-panel test will very likely be positive. Other laboratories are providing a more extensive panel at the same or reduced cost, or even charging a lower fee if the whole panel is negative. For positive test results, the lab may offer a credit or rebate to the owner towards the first immunotherapy treatment set. All of these measures are aimed at making the cost of testing and treatment lower for the client.

A goal of your practice should be to take advantage of these incentives and price your allergy testing very reasonably, with a minimal mark-up compared to other tests – this will allow many more owners to access testing and immunotherapy, which is not only great medicine, but builds an additional profit center for you. Pricing and marketing of allergy testing and treatment has changed substantially in recent times – it is advisable to make sure that your own practice’s pricing and marketing strategies have kept up, as well!

For the convenience of our clients, Marshfield Labs will accept samples for ALLERCEPT Universal and Food Panel testing and refer them to Heska for testing at no additional cost. Please use the Marshfield Labs-ALLERCEPT form found on our website or contact Customer Service at 800-222-5835 to have the forms delivered.

Heska’s ALLERCEPT Definitive Allergen Panel Test has been fully re-engineered to take advantage of the new detection technology and an expanded, comprehensive allergen panel. Heska scientists have significantly improved the sensitivity of IgE detection afforded by their proprietary FC receptor ALLERCEPT® technology. This new, unprecedented level of sensitivity measuring less than 10 picograms of allergen specific IgE, coupled with their gold standard specificity, provides veterinary practitioners with an extraordinary new tool for identifying the precise allergens to which their patients are hypersensitive. This new technology streamlines effective testing and treatment solutions including Therapy Shots and Therapy Drops for veterinarians and pet owners.