Allergy season is upon us, and for most of us that means a new influx of scratching pets appearing at our practices. Though diagnosing allergy can be complicated, there’s hope on the horizon: new studies on diagnostic criteria are making it easier and quicker to establish a clinical diagnosis, and improvements in serologic allergy testing are both facilitating treatment and enabling more owners to access these tests for a more reasonable price. Part I of this article will discuss clinical diagnosis; Part II will focus on serologic allergy testing.

PART I. CLINICAL FEATURES AND DIAGNOSIS OF ATOPIC DERMATITIS

One of the most important basic principles to understand about diagnosis of allergy is that initial diagnosis is achieved mostly by clinical observation – not with a laboratory test. We are all familiar with the pet with a sudden appearance of dorsal lumbo-sacral pruritus and lesions and the finding of flea stool on the pet, where we can make a clinical diagnosis of flea allergy dermatitis without seeing the actual culprit scurrying around through the haircoat. The clinical appearance is distinctive. In the same way, recent epidemiologic studies of itchy dogs have uncovered lists of certain clinical criteria that are highly associated with canine atopic dermatitis (AD), and can help to differentiate it from other causes of itch such as parasites and infections.

History. History is an extremely important issue in all skin disease, but especially in diagnosing allergy, where there are some important historical clues that you may be dealing with an allergic pet. A prominent feature of AD is pruritus, which may be initially unassociated with lesions. The pruritus almost always starts before 3 years of age, may be seasonal at first, and may worsen over time. It is most typically evident on the feet, face, and ventral body surfaces. Breed predispositions must be considered. If corticosteroids have been used for treatment, there is often a good response. It is exceptionally helpful and saves much time to design and utilize a client history form for the purpose of collecting a complete and uniform history on every patient.
Exam Findings. There may be no primary rash in AD. Early skin changes may be limited to just erythema or what is termed “pruritus sine materia” (pruritus without lesions). Most visible lesions are secondary to the pet’s scratching, or to complicating diseases such as pyoderma, yeast dermatitis, or seborrhea. Excoriations from scratching may be seen. Also very common is bilateral, chronic, recurrent otitis externa; in fact, bilateral itchy ears and intermittent ear infections are the major or only manifestations of AD in some dogs, and pinnal dermatitis is a hallmark of AD in many patients. Recurrent “hot spots” can be a manifestation of AD. Some dogs and cats have ocular signs (conjunctivitis, lacrimation, rubbing at eyes), and a few have anal pruritus. Severely affected, chronic cases may have dramatic alopecia, hyperpigmentation, and lichenification. Respiratory signs appear uncommonly in dogs.

Diagnostic Criteria for Canine AD. Based upon evaluation of large groups of dogs with AD and comparison with other inflammatory skin diseases, lists of diagnostic criteria have been developed to aid in diagnosis and to select uniform populations of patients for inclusion in clinical trials. Most recently, Favrot et al. conducted an extensive study involving detailed statistical analysis of a very large group of geographically-diverse atopic dogs. This study has yielded the most useful, validated set of criteria to date. Using these criteria, one can propose a clinical diagnosis of canine AD with 85% sensitivity and 79% specificity, if any five of the eight criteria are met. Further refinement of the accuracy of the diagnosis can then be achieved by ruling out other common skin conditions that mimic AD. The eight criteria are listed in Box 1. The criteria form a kind of “quick checklist” that practitioners can use when evaluating a pruritic dog.

One must remember that these criteria are useful for the diagnosis of typical or “classical” atopic dermatitis, and that atypical presentations may occur, which will not satisfy the criteria. In addition, the approximately 80% specificity means that if they are strictly applied, one will make an incorrect diagnosis in 1 out of 5 dogs! Thus, there is a critical next step that must be taken, which is to conduct additional in-office diagnostic tests to rule out other skin diseases that can ‘mimic’ allergy.

Box 1. Diagnostic Criteria for Canine Atopic Dermatitis

1. Age of onset < 3 years
2. Dog lives mostly indoors
3. Corticosteroid-responsive pruritus
4. Chronic or recurrent yeast infections
5. Affected front feet
6. Affected ear pinnae
7. Non-affected ear margins
8. Non-affected dorsal lumbosacral area

If a dog has five or more of these clinical criteria present, a tentative diagnosis of atopic dermatitis can be made with 85% sensitivity and 79% specificity. Additional diagnostic evaluations are then used to further refine the diagnosis and achieve greater certainty. Note that these criteria are valid for dogs only.
Favrot’s group went further in an attempt to differentiate pruritic disease that is food-induced vs. not food induced. In fact, there is current discussion over whether we should consider “food allergy” as a completely separate disease, or to consider it as “food-induced atopic dermatitis,” though this is largely a matter of terminology. Patients with food-induced pruritic skin disease were more likely to have nonseasonal disease and gastrointestinal disturbances, while less likely to have blepharitis, pruritus sine materia, or corticosteroid-responsive pruritus.

The investigators also attempted to repeat this work and study feline allergies. Unfortunately, extensive analysis of criteria for diagnosing feline allergy failed to provide a similarly useful list for cats.

**Steps in Diagnosis of Canine Atopic Dermatitis**

Initially, AD is a diagnosis made clinically using three very important steps; all are required for a proper clinical diagnosis of canine AD (see Box 2):

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**Box 2. Steps in the Clinical Diagnosis of Canine Atopic Dermatitis**

1. Assure that the history is consistent with atopic dermatitis
2. Assure that the clinical signs are consistent with atopic dermatitis
3. Rule out all other causes of pruritic dermatitis that can appear similar to AD

Items 1 and 2 can be conveniently achieved by careful history and examination, and consideration of the Diagnostic Criteria described above.

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Next, for Step 3, consider differential diagnoses – there are several skin conditions that can mimic the presence of AD, and can surely fool you if you are not careful! Differential diagnoses to especially consider (and the in-office diagnostic procedures that MUST be performed) include:

- Food allergy (rule out with a carefully-conducted dietary restriction-provocation trial).
- Flea allergy (always make sure all pets in the household are on adequate flea preventive for your area).
- Mites (especially *Sarcoptes, Cheyletiella* but sometimes *Demodex*) - do scrapings; but because *Sarcoptes* is so difficult to find, always do a prospective trial of e.g. ivermectin or selamectin (every 2 weeks for 3 doses) to completely rule this culprit out.
- Infections - pruritic staphylococcal pyoderma due to some other cause, and primary yeast dermatitis. In addition to careful examination for lesions, perform skin cytology to identify yeast or staph infections, and treat as necessary.

Once the above diagnostic criteria are met, AND all other diagnoses are ruled out, then and only then can one make a clinical diagnosis of AD.
But What about “Allergy Testing”?

It is very important to understand that atopic dermatitis is a *clinical diagnosis* – it is made using clinical observational skills and elimination of alternative differential diagnoses. Using the new criteria and a checklist for diagnosis facilitates speedy initial clinical diagnosis. Note, however, that AD is not diagnosed by use of an “allergy test” – allergy tests are useful only to plan immunotherapy **AFTER** you have achieved the clinical diagnosis of AD. In some cases, allergy test results may also help guide owners to avoidance measures that can be taken to limit exposure to the relevant allergens. Part II of this article will focus on serum allergy testing, and its appropriate use in managing atopic patients.

*Fig 1.* Young atopic dog with moderate ventral erythema and pruritus, typical of findings in early atopic dermatitis. Note the multifocal red papules and pustules in the inguinal area, indicating the presence of a secondary staphylococcal pyoderma.

*Fig 2.* Foot of a dog with chronic atopic dermatitis. Note plantar and interdigital erythema, inflammation, and thickened skin due to pedal pruritus and longstanding self-trauma.