



# My 6-STEP PLAN for Diagnosing & Managing the PRURITIC DOG

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**P**ruritus (**Figure 1**) is one of the most common reasons dogs owners seek veterinary care. The diseases most likely to cause pruritus in dogs include environmental- or food-triggered (cutaneous adverse food reaction, CAFR) atopic dermatitis (AD), bacterial pyoderma, dermatophytosis, ectoparasitic infection, and *Malassezia* dermatitis.

Over many years of specializing in dermatology, I have had the opportunity to evaluate a variety of approaches to diagnosis and treatment of the pruritic dog. The following 6 steps outline what I've found works best for diagnosing and managing this common problem.

## 1 HISTORY Clinical Signs

**Where on the body did the dog begin itching? Where is it itching now?**

Certain diseases have predictable distributions:

- **Posterior third of the body:** Flea allergy until proven otherwise (dog fails to respond to aggressive flea treatment)
- **Ears, elbows, and hocks:** Consistent with sarcoptic mange; in addition, allergies can mimic sarcoptic mange and vice versa
- **Feet, face (Figure 2), flexor surfaces, and frictional/skin folds:** Consistent with AD (see **Canine Atopic Dermatitis**, page 38).

### At what age did the clinical signs first appear?

Age of onset of the first episode of pruritus (or otitis externa, which may be a manifestation of AD) may indicate the cause of pruritus.

- **Less than 6 months of age:** Cutaneous adverse food reaction (food-triggered AD), ectoparasitic infestation; or infectious causes (dermatophytosis); less likely, environmental allergen-induced AD (eAD)
- **6 months to 5 years of age:** CAFR, eAD, or ectoparasitic infestation
- **6 years of age or older:** CAFR, ectoparasitic infestation, endocrinopathies (with secondary bacterial or *Malassezia* infections), or cutaneous neoplasia (eg, cutaneous T-cell lymphoma); less likely, eAD



**Figure 1.** Alopecia, scale, and erythema present in dog with *Malassezia dermatitis* secondary to environmental allergen-induced atopic dermatitis; treatment of the infection decreased pruritus by 90%.



**Figure 2.** Lichenification, hyperpigmentation, and erythema present in the skin fold of a dog with cutaneous adverse food reaction.

Welcome to **Dermatology Details**, the newest column in **Today's Veterinary Practice**. These articles will provide succinct nuggets of knowledge about common (and sometimes uncommon) dermatologic conditions seen in general practice. Authors will share clinical tools, such as their own personal approaches to diagnosis and treatment, that practitioners can use to better care for their patients.

**Are there any gastrointestinal (GI) signs, such as vomiting or diarrhea?**

These signs could indicate CAFR; food reactions can cause concurrent GI and cutaneous signs.

**Do clinical signs vary by season or location?**

Seasonal variation could be consistent with flea allergy, or allergies to trees, grasses, or weeds. If the dog exhibits increased pruritus while outside, outdoor allergens could be the culprit. However, if the dog exhibits increased pruritus indoors, this suggests a reaction to household allergens, such as dust mites or mold.

**Using a scoring system of 0 (no itching) to 10 (severe, nonstop itching), how pruritic is the dog today? Is this better or worse than previous days/weeks/months?**

By establishing a baseline during the initial visit, and reevaluating the severity of pruritus at subsequent visits, the dog's response to treatment can be evaluated. If the pruritus is increasing in severity, consider concurrent bacterial or *Malassezia* infection or ectoparasite infestation.

**Treatment & Preventive Care**

**Has the dog been treated previously for pruritus? If so, when and with what medication(s)? What was the response to treatment?**

Failure to respond to a course of oral glucocorticoids (eg, prednisone) at an anti-inflammatory dose would be consistent with 1 or more of the following causes of pruritus:

- CAFR
- Chronic steroid use in dog with eAD (in some dogs, pruritus becomes less responsive as steroid use increases)
- Ectoparasite infestation (however, depending on how severely allergic the dog is to fleas, pruritus may respond to steroids; the same applies to sarcoptic mange)
- Infection (bacterial or *Malassezia*).

**Are any parasite preventives administered to the dog? How often and in what form? Are the preventives administered seasonally or year-round?**

Dogs should be receiving preventives for both ecto- and endoparasites, with administration based on manufacturers' instructions. Any lapse in administration, including preventives administered only seasonally, could be an indication that the pruritus is a reaction to parasitic infestation.

**Routine Lifestyle**

**What does the dog eat?**

A comprehensive list should outline the dog's diet (eg, dry/wet food, treats, table scraps), ingredients and preparation (eg, commercial, home-cooked, raw), and amounts. This information can provide insight into potential CAFRs.

**Are there any other pets in the household? If so, do they have similar clinical signs? If there are cats in the household, do they go outdoors?**

Evaluating the health and lifestyles of the household's other pets can provide various clues regarding the cause of pruritus; for example, if all pets in the household are affected, infectious disease is a likely candidate.

**Are any humans in the household affected by recent skin "problems"? If so, what kind?**

If humans and pets in the household are exhibiting similar skin problems, a zoonotic disease should be suspected.

**CANINE ATOPIC DERMATITIS** (cAD) is a genetically-predisposed inflammatory and pruritic skin disease, most commonly associated with IgE antibodies to environmental allergens.<sup>1</sup> Clinical signs wax and wane.

In veterinary medicine the criteria for diagnosing cAD have evolved over time. Historically, 1 of 2 sets of criteria have been used for diagnosis of cAD.<sup>2,3</sup> The problem with these previous criteria is that one<sup>2</sup> was never validated and the other<sup>3</sup> had a limited sample size. The most current guidelines were proposed by Favrot (**Table 1**).<sup>4</sup>

It is critical to rule out other causes of pruritus, such as ectoparasites or infectious causes, before applying these criteria to a pruritic dog. This is due to the fact that, if 5 of Favrot's criteria are matched, sensitivity and specificity are approximately 85% and 79%, respectively, which means that, using only Favrot's criteria, an incorrect diagnosis will be made approximately 20% of the time.

Therefore, these criteria should be used in concert with:

- Complete history
- Physical examination
- Diagnostic testing
- Evaluation of response to treatment.

**TABLE 1. Favrot's Criteria for Canine Atopic Dermatitis**

1. Affected ear pinnae
2. Affected front feet
3. Dog that lives mostly indoors
4. Glucocorticoid-responsive pruritus
5. Onset of signs in dog less than 3 years of age
6. Pruritus sine materia at onset (ie, alesional pruritus)
7. Nonaffected dorsolumbar area
8. Nonaffected ear margins

A combination of 5 satisfied criteria has a sensitivity of 85% and specificity of 79%, differentiating dogs with cAD from those with chronic or recurrent pruritus but not cAD. Adding a sixth fulfilled parameter increases specificity to 89% but decreases sensitivity to 58%.

Does the dog visit places outside the home, such as obedience school, dog parks, the groomer, or a boarding facility? If so, when was the last time the dog traveled away from home?

Exposure to other pets and environments opens the door to a variety of causes for pruritus, including infections and allergies.

### Genetic Predisposition

Do the dog's parents or siblings have pruritic skin problems? If so, has the pruritus been diagnosed and treated? What was the response to therapy?

Certain diseases and dermatologic conditions, such as eAD, endocrinopathies, and *Malassezia* infections, have recognized breed predispositions, which can help narrow the list of differential diagnoses.

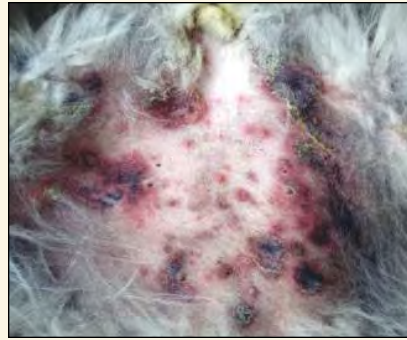


Figure 3. Papules, hyperpigmentation, and epidermal collarettes in a dog with a superficial bacterial infection due to long-term administration of glucocorticoids for treatment of environmental allergen-induced atopic dermatitis.

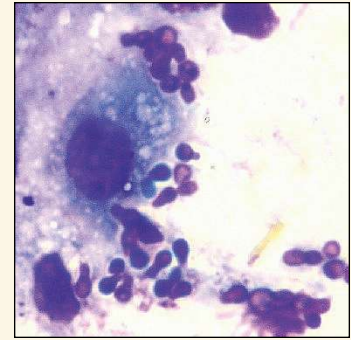


Figure 4. Skin cytology from a dog with *Malassezia* dermatitis; note the basophilic peanut-shaped budding structures consistent with *Malassezia* pachydermatitis. There are also 3 keratinocytes present.

## 2 PHYSICAL EXAMINATION

- Evaluate distribution of lesions (erythema, excoriations, lichenification, hyperpigmentation, alopecia, etc), which can provide insight regarding the cause of pruritus.
- Determine if there is evidence—papules, pustules, exudate, crusts—that suggests a secondary bacterial or *Malassezia* infection/overgrowth is present.

## 3 INITIAL DIAGNOSTICS & THERAPY

### Minimum Database for Pruritic Dogs

- **Flea combing** to determine, specifically, if fleas or *Cheyletiella* mites are present
- **Skin scrapes** to determine if other ectoparasites are present
- **Skin cytology** if lesions (papules, pustules, exudate, lichenification, crusts) are present to identify bacterial or *Malassezia* infection

Classic clinical evidence of potential dermatophytosis includes alopecic, scaly lesions in young dogs (< 6 months of age); diagnostics include:

- **Trichogram**
- **Wood's lamp**
- **Fungal culture.**

### Initial Therapy for Pruritic Dogs

If any of the tests above are positive, treat the dog as described; then recheck in 14 to 21 days.

**Superficial bacterial pyoderma (Figure 3):** Oral first generation penicillinase-resistant beta lactam

- Cephalexin, 22 to 33 mg/kg PO Q 12 H
- Amoxicillin-clavulanate, 22 mg/kg PO Q 12 H
- Chlorhexidine wipes/sprays or mupirocin ointment

***Malassezia* dermatitis (Figure 4):**

- Ketoconazole, 5 to 10 mg/kg PO Q 24 H (administered with food to increase absorption)
- Chlorhexidine (3% or higher) or chlorhexidine/azole

shampoo, used twice weekly

- Azole or chlorhexidine wipes (Mal-A-Ket Wipes or TrizCHLOR 4 Wipes; dechra-us.com)

### Ectoparasitic infection:

- Therapeutic trial for ectoparasites if all previous diagnostics are negative:
  - » Selamectin or imidacloprid + moxidectin applied Q 14 days to all dogs in household
  - Note that this is off-label use of these products.*
  - » Flea adulticide administered to all cats in the household
- If the household's dogs and/or cats are not receiving preventive containing lufenuron, the household should be treated with a product containing an adulticide and an insect growth regulator/inhibitor or undergo a professional extermination.

### Glucocorticoid administration:

- If *pruritus* is generalized and infection is very localized, a short course of oral prednisone is appropriate in order to address skin inflammation.
- If *pruritus* is only located in the same area as infection (or mostly where infection is located), such as in the presence of demodicosis, bacterial pyoderma, or *Malassezia* dermatitis, then steroid use should be avoided.
- Prednisone, 0.5 mg/kg PO Q 12 H, or prednisolone is typically the steroid of choice and administered for 5 days.

A recent study showed that, when using chlorhexidine, only 1-minute of contact time was needed to treat bacterial pyoderma.

However, this has not yet been demonstrated for chlorhexidine treatment of *Malassezia* dermatitis.<sup>5</sup>



### PRODUCT PROFILES ON ECTOPARASITES & ENDOPARASITES

For comprehensive tables of parasite preventives and their manufacturers, ingredients, species specifications, and indications, visit [todaysveterinarypractice.com/resources.asp#resources](http://todaysveterinarypractice.com/resources.asp#resources) to download:

- **Common Flea Preventive Medications** for Dogs & Cats
- **Common Tick Preventive Medications** for Dogs & Cats
- **Common Heartworm Preventive & Intestinal Parasite Medications** for Dogs & Cats.

## 4 FIRST RECHECK APPOINTMENT

The first recheck appointment should take place 14 to 21 days after the initial appointment (**Steps 1 through 3**).

**If Pruritus Has Resolved** without the use of steroids, continue bathing and antimicrobial therapy for another 7 to 10 days. This response to therapy has narrowed the diagnosis to:

- **Resolved ectoparasite infection:** Discuss long-term prevention of ectoparasites with clients.
- **Seasonal AD:** The dog was most likely pruritic due to a secondary infection, not seasonal AD; therefore, now that the infection has resolved, so has the pruritus. Discuss long-term management of AD with the clients (**Step 6**).
- **Combination of ectoparasite infection and secondary infection due to AD**
- **Endocrinopathy:** Endocrinopathies (hypothyroidism or hyperadrenocorticism) predispose dogs to pruritic pyoderma or *Malassezia* dermatitis.
  - » Investigation for endocrinopathies should be considered in middle-aged dogs with recurrent pyoderma (with or without pruritus) that responds 100% to antimicrobial therapy only (no use of steroids).
  - » Note that dogs with these endocrinopathies may not show other signs of the disease: for hypothyroidism, lack of lethargy, heat-seeking behavior, weight gain; for hyperadrenocorticism, lack of polyuria/polydipsia or elevated liver enzymes.

**If Bacterial Pyoderma Has Not Resolved** by this time:

- **Collect bacterial culture samples from 3 lesions** (papules, pustules, crusts, or epidermal collarettes) on the same swab, which increases the likelihood of identifying different strains of *Staphylococcus* with different susceptibility profiles that may be present, and submit it for an aerobic bacterial culture and sensitivity.
 

*Note that a bacterial culture may be collected even if the dog is currently receiving antibiotics.*
- **Discontinue the antibiotic;** otherwise, you are enhancing the environment for development of resistant bacteria.

- **Increase bathing to daily**, or as frequently as possible. Consider applying chlorhexidine spray and/or Dakin's solution daily (see **Dakin's Solution**).
- **Schedule recheck appointment** in 10 to 14 days.
- **Treat the infection** based on culture results and begin to determine the initial or underlying cause of the infection (which is beyond the scope of this article).

### DAKIN'S SOLUTION<sup>6</sup>

1. Combine 2 oz of household bleach (5%–8%, without fragrances), 32 oz of water, and ½ tsp of baking soda.
2. This solution should be prepared daily.
3. Avoid applying to areas near mucous membranes.

**If the Secondary Bacterial and/or Yeast Infection Has Resolved but Pruritus Has Not Resolved**, evaluate the dog for potential CAFR.

- **Begin an elimination diet trial.** Discuss with clients the advantages and disadvantages of the many different options for diet trials, from home-prepared foods (what I consider the gold standard) to commercial diets (more convenient but may “miss” up to 50% of dogs with CAFR).<sup>7</sup>
- **Use topical parasite preventives or have oral ones compounded** since there are currently no unflavored oral preventives available.
- **Administer a tapering dose of oral prednisone** (see **Table 2**) if the dog's pruritus is severe and of significant concern to the client; use only oral prednisone/prednisolone and avoid long-acting injectable steroids.
- **Schedule recheck appointment** in 30 days, making sure the dog has not received steroids for 7 days prior to the appointment, which allows you to evaluate how the diet alone is controlling the pruritus; see **Table 2**).

## 5 SECOND RECHECK APPOINTMENT

**If the Pruritus Has Resolved**, it is important to perform a dietary challenge, which will help determine whether the resolution of pruritus is directly associated with the diet change.

TABLE 2. Oral Prednisone Dose: Tapered for Elimination Diet Trial

WEEK	PREDNISONE DOSE
1	0.5 mg/kg PO Q 12 H for 7 days
2	0.5 mg/kg PO Q 24 H for 7 days
3	0.5 mg/kg PO Q 48 H for 7 days
4	No prednisone beginning 7 days prior to recheck appointment

- **Re-institute the previous food;** if CAFR is present, the pruritus should recur within 14 days.
- **Return to the elimination diet** if the pruritus recurs; the pruritus should resolve in 14 days.
- **Implement a hypoallergenic commercial dog food** if the pruritus resolves. If the owner would like to continue with the home-cooked food, make sure it is balanced since most are not nutritionally adequate.

*Note that a veterinary nutritionist can play an important role in determining the best diet for a pruritic dog with CAFR.*

**If the Pruritus Recurred** once the owner tapered or discontinued the steroid:

- **Extend the food trial** for another 30 days.
- **Dispense another 21-day course of oral prednisone (Table 2)** if the dog is unreasonably pruritic.
- **Schedule a recheck appointment** in 30 days.

## 6 THIRD RECHECK APPOINTMENT

**If the Pruritus Has Resolved,** return to step 5 and follow the directions for the diet challenge, implementation of a long-term nutrition plan, and potential consultation with a veterinary nutritionist if the owner wants to continue feeding the home-cooked food.

**If the dog does not respond to the food trial and the pruritus recurred** once the owner tapered or discontinued the steroid, the diagnosis is eAD, which will require client education on long-term management of the disease.

Basic management includes:

- Frequent bathing and moisturizing of the dog; there are many excellent products available for use including: DermaLyte Shampoo and DermAllay Spray (dechra.com), Allergroom Shampoo and Humilac Spray (virbacvet.com), Dermoscent Spot-On (aventix.ca), and HyLyt (efa) Hypoallergenic Shampoo (bayerdvm.com).
- Clipping the coat short if the dog has long hair
- Wiping off the legs and underside of the dog when it comes in from outdoors



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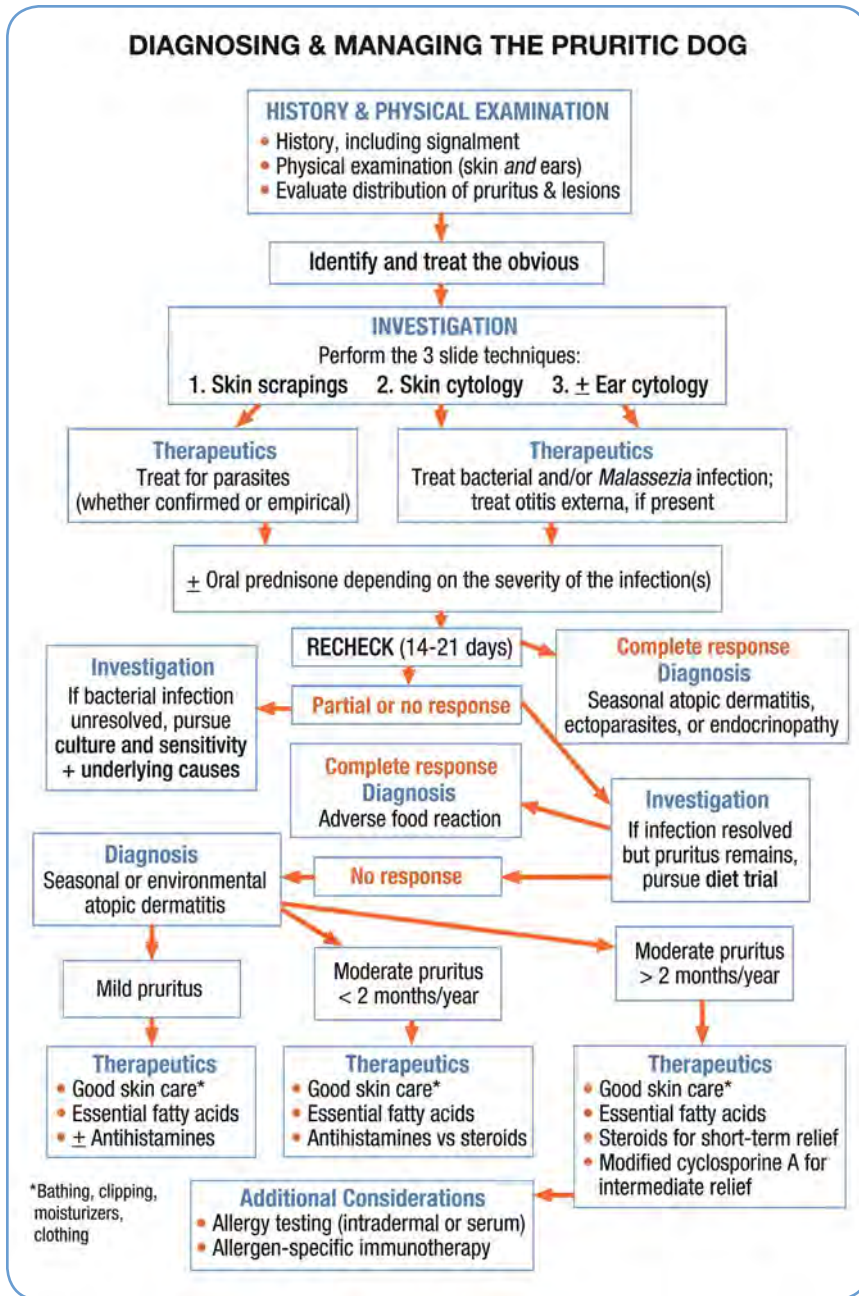
<sup>1</sup> Negre A, Bensignor E, Guillot J. (2009). Evidence-based veterinary dermatology: a systematic review of interventions for *Malassezia* dermatitis in dogs. *Vet Dermatology*. 20:1-12.

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AD = atopic dermatitis; cAD = canine atopic dermatitis; CAFR = cutaneous adverse food reaction; eAD = environmental allergen-induced AD; EFA = essential fatty acid; GI = gastrointestinal

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- Using dog clothing, which helps decrease percutaneous absorption and exposure to environmental allergens
  - Essential fatty acids (EFA) to help moisturize the skin; EFAs may also have some anti-inflammatory properties.
  - In addition, consider (and discuss with the client the advantages and disadvantages of):
    - Antihistamines *if pruritus is mild*
    - Oral prednisone *if pruritus affects the dog for less than 2 months per year*
    - Therapy with modified cyclosporine A (Atopica, Novartis.com)
    - Allergy testing (intradermal or serum testing)
    - Allergen-specific immunotherapy (injectable or oral).
- Schedule periodic rechecks proactively (Q 60–120 days) rather than treating the dog “crisis to crisis.” Treatment when clinical signs are mild, instead of waiting for an allergy flare:<sup>8</sup>
- Improves the pet’s quality of life
  - Helps better manage the disease
  - Is less expensive for the client. ■



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