Pruritus, commonly referred to as itch, is defined as “an unpleasant sensation that provokes the desire to scratch”. In healthy individuals, the response to a pruritic sensation is protective and has the primary goal of eliminating from the skin surface irritants or parasites. However, pruritus is a common sign in various skin diseases and, in these cases it often becomes a persistent problem resulting in damage of the skin barrier and frequently the development of secondary skin infections which unquestionably aggravate the primary disease. Moreover, chronic or persistent pruritus results in significant discomfort to affected animals and stress to their owners.

Despite the fact that many animals and humans suffer with various pruritic skin diseases, little is currently known about the pathomechanism of pruritus which limits our options to manage this common and distressful clinical symptom. However, the future holds promise because more recently, many investigators in the human and veterinary fields are showing interest in understanding and controlling pruritus.

Before we start discussing the pruritic diseases that affect dogs and the approach to diagnosing them, it is important that we review the dog’s response to a pruritic sensation. A pruritic dog may do one or more of the following: scratch with the hind feet, chew with the front teeth, lick at various parts of the body, roll on the ground, and rub the body against objects. It is important for clinicians to know which of these activities the dog is doing to help gauge the level of pruritus which will ultimately assist in formulating a reasonable treatment plan. For example, a dog that solely licks at its feet can be interpreted as having mild pruritus and, probably only needs antihistamines. On the other hand a dog that chews and or scratches at various parts of the body is likely suffering from moderate to severe pruritus and, possibly needs a more aggressive treatment than antihistamines such as, glucocorticoids, cyclosporine or oclacitinib. There are other tools to help gauge the pruritus level such as, visual analogue scales (VAS) and score systems and some of these have been validated for the dog.

As we mentioned before, there are many pruritic skin disorders that affect the dog. Some of these are invariably pruritic and others are variably pruritic. Cutaneous diseases that are invariably pruritic include: allergies (i.e. atopic dermatitis, food allergy, flea bite allergy, contact allergy) and sarcotic mange. Cutaneous diseases that are variably pruritic include: cheyletiellosis, malassezia dermatitis, superficial pyoderma, pemphigus foliaceus, epitheliotropic lymphoma, and cutaneous drug reaction. It is important to keep in mind that various primarily non-pruritic skin disorders can become pruritic when complicated by secondary infections.

Performing a thorough history is crucial to formulating a sensible list of differential diagnoses. Start with the dog’s signalment. There is clear breed predilection for atopic dermatitis (e.g. Labrador retriever, golden retriever, West Highland white terrier, Yorkshire terrier, fox terrier, cocker spaniel, etc.) but, this predisposition can vary according to the geographic region. Clinical signs of atopic dermatitis and food allergy typically start between 1 to 3 years of age; however, some dogs may manifest the disease before 1 year of age (mostly food allergic dogs) or, even after 5-6 years of age (again be more suspicious of food allergy in these cases). Epitheliotropic cutaneous lymphoma affects dogs on average 10 years old or older.

Knowing the sequence of events is very helpful to the clinician but, unfortunately, the owner does not always provide this information accurately. Consider the following scenarios: (i) if the pruritus came first and the owner could not observe any skin lesions, you have to consider allergies as possible causes; (ii) if the pruritus and skin lesions developed simultaneously consider the “invariably” and “variably” pruritic diseases mentioned previously other than allergies; (iii) if skin lesions appear before the pruritus you have to consider the various primarily non-pruritic skin diseases (e.g. hypothyroidism, Cushing’s, alopecia X, follicular dysplasias, etc.) that, in this scenario, developed superficial pyoderma and/or malassezia dermatitis resulting in pruritus.

As we mentioned before, determining the pruritus severity is important primarily to help you decide how aggressive you have to be in controlling the itching (e.g. antihistamines vs. immunomodulatory drugs). It will help clinicians if they determine whether or not a pruritic disease is contagious. If other animals in the household and/or people are affected, sarcotic mange or cheyletiellosis has to be high in the list of possible differentials. However, do not completely rule out these diseases if owners do not present evidence of contagion. Their incubation period can be long. In addition, how close the affected pet gets with other animals and people in the household and the severity of the infestation can influence disease transmission.

Knowing the dietary history will help with the design of an appropriate food elimination trial. Do not forget to also ask if the dog is receiving a chewable heartworm preventative or treats because these will confound the pet’s response to the trial. Also remember not to rule out food allergy if the dog has been on the same source of protein and carbohydrate for awhile before showing clinical signs.

Make sure to ask about any previous medications and the pet’s response. However, it is crucial that you know if the dose, frequency of administration and duration of therapy are correct to allow accurate assessment of therapy response. For example, if a dog is very pruritic and the pruritus did not improve significantly or resolve with an appropriate dose of glucocorticoid, you can rule out sarcotic mange or cheyletiellosis.
Other questions you should ask include: seasonality of clinical signs (seasonal pruritus suggests seasonal atopic dermatitis); time spent indoors and outdoors; contact with grass, cement, plants, wool (can either induce contact allergy or aggravate pruritus due to any cause); and swimming habits (skin moisture for a long period of time can predispose to bacterial or malassezia overgrowth or infection).

A systematic physical examination is as important as a thorough history to gather relevant information that will help the clinician in formulating a sensible list of differential diagnoses. Pay special attention to the distribution of lesions! If lesions are present along the lumbo-sacral region, base of the tail and caudal aspects of the hind legs, it is very likely that the dog has a flea bite allergy. When lesions are present on the ear margins, elbows, hocks, ventral chest and/or ventral abdomen, sarcoptic mange has to take first place in your list of differentials. Presence of scales along the dorsum should increase your index of suspicion of cheyletiellosis. Lesions present around the eyes, muzzle, axilla, groin and feet suggest atopic dermatitis and/or food allergy.

The presence of excoriations or salivary staining indicates the presence of pruritus and the severity of self-trauma provides evidence of the degree of pruritus.

After you have formulated a sensible list of differential diagnosis based on the dog’s history and physical examination findings, the next step is to select the diagnostic tests that will aid in determining the definitive diagnosis. The following are the diagnostic tests that dermatologists use routinely in practice when faced with pruritic disorders: skin scrapings (multiple sites and until capillary bleeding is obtained), cytology (impression smears and tape test), trichography (check for the presence of broken hairs if you suspect pruritus and the owner negates it; check for the presence of cheyletiella sp eggs), intradermal or serum allergy test (will support the diagnosis of atopic dermatitis), dietary trial (the only accurate test to diagnose food allergy), bacterial culture and susceptibility (very important when the pet has been on multiple antibiotics in the past, if there is a history of methicillin-resistant or multidrug-resistant infection, if rod-shaped bacteria are found on cytology, if the infection is deep), close skin examination for the presence of ectoparasites (e.g. fleas, ticks, lice), and skin biopsy (perform if you suspect neoplasia as the cause of the pruritic disorder – e.g. epitheliotropic lymphoma).

At this point, I hope you were able to diagnose the cause of pruritus of your patient and manage the patient appropriately!