Allergies – the clinical picture, diagnosis, and treatments

1. What is an allergy? □□□□□□

An allergy is an immunologic response to foreign substances in foods or in the environment. These substances, allergens, are usually tolerated by normal individuals. The clinical manifestations of allergies are the visible end results of the body's response to allergens. This response is considered a form of hypersensitivity, which can cause profound discomfort for animals and serious angst for owners. □□□□□□□□□□□□□□□□□□□□□□□□□□。□□□□□□□□□□□□□□□□ □□□□。□□□□□□□□□□□□□□□□□□□□□□□□□□□□。□□□□□□□□□□□□□□□□□□□

In animals with recurrent infections, one must consider an underlying allergy as a potential cause.

- Fur mowing: The symmetrical barbering of the fur on belly, flanks, or limbs. Usually, these cats do not traumatize the skin itself.
- Eosinophilic granuloma complex: This category includes eosinophilic (often linear) granulomas, plaques, and indolent ulcers.
- Miliary dermatitis: A term applied to a “cutaneous reaction pattern” that has many possible causes including flea-bite hypersensitivity, ringworm, staphylococcal folliculitis, and allergies. The term describes multiple small crusted papules that spontaneously develop on the skin. These are often felt as the client pets the cat. Early on, without secondary infections or other trauma, these lesions are impossible for the cat to create itself. Cytology (which is often difficult to achieve) often reveals numerous eosinophils.
- Symmetrical pruritus: This is often seen as the cat that creates significant lesions on the face and neck. Secondary infection is common in this form of allergies.

- Atopics usually start off with a seasonal pruritus, but 80% of atopics develop a year round disease. This makes sense since they are pre-programmed to become allergic to their environment.
- Atopy gets worse in time, and dogs/cats do not outgrow their allergies. □□□□

uncomplicated atopy will respond to steroids, we must consider a food allergy in a dog that does not respond.

- **There are no reliable blood tests for food allergies.** Serologic tests looking for IgE against food allergens are inaccurate and even misleading.

- A properly performed home cooked elimination diet trial is the only 100% accurate "test". These are designed once we know the current or previously eaten ingredients. Food allergics should improve within 4 weeks of removing the inciting ingredient. However, it may take 12 weeks to see maximal benefit since the allergic immune system takes time to normalize.
- Commercially available "novel protein" or "hydrolyzed" (chemically chopped up into smaller pieces) diets have a 10-15% failure rate. This is true even if the bagged diet is chosen based on current/previous ingredients. Ingredients get pretty similar as you look down the list (fish oil, pork fat, etc…).
- Watch out for terms like "animal digest" or "meat-by-product" or "fish-meal."
- Thankfully, dogs and cats very rarely develop allergies against an effective novel protein diet.
- Shampoos: Appropriate high quality shampoos increase the hydration of the stratum corneum (outer skin layer) and improve the skin barrier. Shampoos are a very effective vehicle for antimicrobial agents. Shampoos can contain anti-pruritic agents (colloidal oatmeal, hydrocortisone, pramoxine, etc…). Shampoos also help remove topical allergens through a simple cleaning action. Shampoos are obviously not a great option for cats.
- Antihistamines (and other nonsteroidal agents): Antihistamines can reduce the action of histamine on a receptor level (H1) and reduce the release the histamine. They are better at preventing pruritus and are not good at removing pruritus. As such, we commonly use steroids to "put out the fire" and then we can see if the antihistamine can keep the animal comfortable. If they help, then they are given routinely at the appropriate dosage interval. Antihistamines can have a steroid sparing effect and they are often used together. Nonsedating antihistamines (Claritin, Seldane, etc…) are not as effective as the sedating types (deiphenhydramine, chlorpheniramine, hydroyzine, clemastine). Amitriptylline (a Tri-Cyclic Antidepressant) has potent antihistaminic properties, is cheap, administered twice daily, and may help dogs with anxiety. Pentoxifyline (a methylxanthine derivative) works in a different manner but helps up to 30% of atopics. Antihistamines can be very effective in cats.
- Omega Fatty Acids: Certain omega fatty acids can lead to anti-inflammatory prostaglandins and leukotrienes. To achieve this result, the ratio of Omega 6's (e.g. certain vegetable oils) to Omega 3's (e.g. fish oils) is very important and should be between 10:1 or 5:1. Supplements (DermCaps®, etc…)can help to achieve this goal, but it is easier/cheaper to have a diet with the ideal types/quantity/ratio of omega FA's. Eukanuba® dog foods have been studied repeatedly and have consistent and high quality omega FA's.
- Steroids: We use short acting steroids (pred family) when necessary to control itching. Prednisolone is ideal for cats and we often use this over plain prednisone in dogs too. We do not want to use more than 0.5 mg/kg prednisolone every other day long term as it has many side effects (Cushings, elevated liver enzymes, immunosuppression, polyuria/polydipsia). Methylprednisolone is 20% more potent than prednisolone, but has minimal mineralocorticoid properties and is well tolerated by older patients. DepoMedrol (methylprednisolone acetate) is a reasonable option for cats that are difficult to pill. The shots can last over 2 months, but should

not be used as a sole treatment for atopy if more than 2-3 shots are needed annually.

- Cyclosporine (Atopica®): A very expensive option when needed every day (about $8-9 for the average Labrador!). Perhaps 70% of animals improve when dosed daily. This 70% is not completely "cured" and may only have less erythema or partial improvement in pruritus. If daily therapy works, then we try to go to every other or even every third day. With each drop in frequency, you can expect to lose control in ½ the animals that improved. It is a good option for cats (due to efficacy and cost reasons), BUT… they must be *Toxoplasma gondii* titer negative or they may develop fulminant toxoplasmosis and die.

- What about allergy shots?.... □□□□□□□
- Allergy testing is available as serologic and intradermal skin test (IDST) options. Both have pro's and con's. (No steroids allowed for either testing scheme. Sedation only needed with IDST. Antihistamines and omega fatty acids ok for serology).
- Serologic allergy testing (VARL, HESKA, Greer) looks at species specific IgE's against environmental allergens. False positives or negatives are possible as blood antibodies may not correlate with the antibodies in the skin. Allergy shots based on serology can work in 2/3 of dogs, and this is about the same success rate as allergy shots based on skin testing.

- IDST should not have false positive results, but can have false negative results. Only well trained/experienced clinicians should perform/interpret IDST.
- Either serology or IDST alone can explain the itching pattern in 75% of cases. We often need to use both tests to best explain an animal's seasonality or lack thereof. ASIT based on both tests combined may have the best results.
- ASIT is giving purified, sterile (but fairly crude) allergen extracts subcutaneously. We are giving way more of an allergen than they would normally encounter, but it is via a different route (SQ). Theoretically, this exposure should drive the Th2 response (hypersensitivity) toward a Th1 response (tolerance).
- Initially, a dilute and small quantity is given, and then shot gradually build up to more concentrated and more volume of shot.
- The most common side effect is increased itching, and this usually indicates that we are giving too much allergen (at least once at a maintenance dosage).
- A common scenario is that the shots provide a palliative effect, but this wears off before the next shot is due. This indicates that the interval may need to be shorter.
- Shots make 1/3 dogs great on shots alone, 1/3 dogs better (still need medicines, but generally need less steroids), and just do not work in 1/3 of dogs.
- It takes a full year to see maximal benefit from the shots.

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NOTE: The hallmarks of allergic dogs are the above signs without primary skin lesions. In other words, by definition, they commonly have an “itch that rashes” and not a “rash that itches”. However, the latter scenario must be ruled out and addressed as skin infections (yeast or bacterial) often exacerbate pruritus.

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Tolerable is a relative term and is different for certain animals and certain clients. A Bichon may have a lower threshold and more severe symptoms than a Labrador. We can remove all pruritus with higher dosages of steroids, but this is not compatible with a long healthy life. If we need to use steroids, we strive to achieve the lowest dose possible on no more than an alternate day basis. □□□□□□□□□□□□□□□□□□□□□□□。□□□□□□□□□□□□□□“□□□□/□□□□□□□□□□□□。□□□□□□□□□□□□□□□□□□□

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4. Allergy testing and allergen specific immunotherapy (ASIT or “allergy shots”): □□□□□□□□□□□□□□□□□□□□

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