What’s the Itch All About?

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May 28, 2015

When an animal is allergic to something, its body is overreacting to certain molecules called allergens such as dust, dust mites, mold, grass, ragweed, trees, flea saliva, and food proteins. When allergens are inhaled, ingested, or come in contact with the animal’s body (absorbed) – the animal’s immune system makes a protein called IgE.

This protein IgE is produced in large amounts and attaches to tissue mast cells. When animal comes back in contact with the allergen – the IgE attached to tissue mast cells causes the mast cells to release several irritating chemicals such as histamine, cytokines, leukotrienes, and others.

The tissue mast cells are primarily located in the skin of animals – thus the irritation occurs there and causes itching. In people, mast cells are primarily located in respiratory tract – eyes, nose, and lungs.

So when you are sneezing and your pet is itching – you both could be having allergies to the same things

Allergies are also believed to also involve a barrier defect in people and animals. When antigen comes in contact with skin surface, skin barrier defects allow the antigen to penetrate the epidermis and bind to immune cells. This causes a release of histamine, proteases, and cytokines which cause the itching.

4 different types of allergies
1. Allergic inhalant allergies. Other names: atopy, allergic dermatitis
   -Most common - 70-80% Itching animals
2. Food allergies
   -5-20% of itching dogs
   -40% of itching cats
3. Flea allergy dermatitis
4. Contact allergy dermatitis
Environmental factors are also interacting with Genetics. Several dog breeds are known for allergies such as boxer, cocker spaniels, Labrador retrievers, poodles, bulldogs, and others. In cats – no genetic factors have been found at this time.

**Clinical symptoms** of allergies is ITCHING!!!!!! (licking, chewing, scratching)
- Scratching on the body, hair loss due to self-trauma is a common feature
- Can be seasonal (spring, fall) or all the time
- Many times starts off as seasonal and becomes all the time as animal develops more allergies
  - Chewing on feet, Rubbing face on carpet
  - Can occur with skin infection and ear infections
  - Red itchy eyes, sneezing

**Cats** will show different symptoms sometimes
- Licking excessively, Eosinophilic plaques, Rodent ulcers on lips, Skin infections and ear infections

**Age for allergies** - Typically starts at 2-3 years of age in both cats and dogs
It takes time for body to build up immune response against allergens.
Many times the first year in a new environment – animals will not react, but the following year will show symptoms

**Testing for allergies**
**NO DIAGNOSTIC TEST FOR ALLERGIES**
History, clinical signs, response to treatment
  - Rule out other causes for symptoms – fleas, Fungal infections, yeast infections, Bacterial infections, Mites, Thyroid disease

Can **you test for the allergens** your animal may be allergic too?
**Intradermal Skin Testing – Dermatologist**
  - Can help identify allergens for avoidance
  - Information used to make up vaccine for immunotherapy
  - 70% efficacy for improvement of clinical symptoms
  - Does not accurately test for food allergies
**Bloodwork (serology) – Checks for allergy specific IgE in the bloodstream**
  - Can be done at Vet office
  - 65% efficacy for improvement of clinical symptoms
  - Does not accurately test for food allergies
Treatment - No specific protocol

Treat all secondary yeast and bacterial infections
   Ear swab to look for infection – bacterial or yeast
   Clean out ears and apply medicine
   Routine ear cleanings to prevent future infections
   May swab skin to look for bacteria/yeast
   Treat skin infections with pills or topical medication

Short term corticosteroids to control itch cycle
   Stabilizes the mast cell – keep it from releasing chemicals
   Should be used short term
   Breaks the itch cycle
   Works great to control allergy symptoms
   Injectable and pill form
   Has long-term side effects
   May cause excess peeing and drinking
   Cortisone and antihistamine combo

Antihistamine tablets – stops histamine from being released from the mast cell
   Can be used long-term with minimal side effects
   Works well with mild itching
   Minimal side effects
   Inexpensive
   Can be used long-term
   Can be used with other allergy medicines

Topical medications – shampoos, creams – very safe
   Shampoos - Let sit for 10 minutes, Leave-in cream rinse
   Very safe, Help control itching, Bacterial infections, Yeast infections, Red, inflamed skin,
   Dry or Oily skin (seborrhea), Replenishes oil in skin barrier
   Topical medications like Creams, Ointments, and sprays – very safe – helps with itching,
   bacterial infections, yeast infections, red and inflamed skin

Essential Fatty Acids (omega 3) capsules – helps barrier
   Helps balance skin barrier and manage inflammation in skin and other organs
   Supplementing will help 50-65% of dogs and cats

Cyclosporine – works well, $
   Keeps Helper T-Lymphocytes from releasing chemicals which cause the Mast Cell to
   release histamine and other chemicals
Works well in 50-60% of dogs and cats, can have long-term side effects
Use daily dosing for 4-6 weeks, then go to every other day or every 3rd day if working

Selective JAK (Janus Kinase) inhibitor – works well, availability?
Inhibits the function of the cytokines released from the Mast cell that cause itching
Very specific, minimal side effects, So far – looks good to use long-term
Meant to replace corticosteroids and can be use with other allergy medicine
Dogs only, No cat product

Immunotherapy
Identify allergens animal is allergic. Skin and Blood test, 65-70% improvement of symptoms
Usually recommended if medications aren’t enough to control symptoms
Retrains the immune system by injecting small amounts of allergens
Owners shown how to give injections
For dogs and cats, will take up to one year to see improvements
May need to give injections for years
Does not work for food allergies
Will still use other allergy meds at least for 1-2 years
Daily oral (my mouth) therapy also available

Essential oils and other complementary treatments
Essential Oils – Lavender, Lemon, Peppermint
Dermoscent

Avoidance – Dust/Dust Mites
Plastic or Allergy covers for bedding/pillows
Reduce humidity
Dehumidifier
Use air conditioning
Wash bedding weekly in hot water (130F)
Replace or remove drapes, upholstery, and carpet
Have animals out of the room while vacuuming and several hours after
Minimize stuffed toys or pillows
Freeze toys and small pillows for 24 hours (kills mites)
During winter months place dog mattress outside for 24 hours (kills mites)
Use hypoallergenic filters in house and change often

Avoidance – Pollens
Keep track of pollen count often
Local daily reports online
Keep pets indoors when pollen counts are high
Keep windows closed during high pollen counts – especially through the day
Wash feet when animal comes inside – may need to bath if outside a long time
Keep pet inside when mowing lawn

Avoidance – Molds
- Keep pets out of basement
- Avoid large number of houseplants (grows in soil)
- Use Dehumidifiers
- Clean and disinfect dehumidifiers/humidifiers more often
- Clean kitchens, bathrooms, and basements regularly and keep them well aired

Avoidance – Fleas
- Keep all animals on flea medicine at least spring through fall to prevent infestation
- Watch for other animals coming into your environment that may bring fleas

Avoidance – Foods
- Minimize different foods and treats your pet eats
- Pick one type of food to feed and keep the same as long as pet does well
- Pick one or two types of treats
- Limit table feeding – especially beef and dairy
- The more types of food your pet sees – the more they can develop allergies to those foods

Food Allergy versus Food Intolerance
- Allergy - Itching, ear infections, skin infections, swollen face
- Intolerance - vomiting and diarrhea

Can occur concurrently with Inhalant Allergies (40%)
Not typically seasonal – so all year around, can be at any age, but seen in young animals commonly

Food allergens in order of most common:
- Beef, Cow’s milk (Dairy), Lamb, Chicken, Grains (corn, soy, wheat), others

There is no blood test or skin test for food allergies
- Blood levels of IgE don’t match up with clinical signs

Diagnosis is made with a food elimination trial, followed by a food challenge
Feed one hypoallergenic diet ONLY for 10-12 weeks
If animal improves – go back to original diet and wait for itching to come back – then reintroduce hypoallergenic diet to see itching goes away again

Types of food allergy trials:

   Novel Protein source
   Find protein animal has never been exposed too
   Example: Duck, Kangaroo, Venison, Potato, etc

   Hydrolyzed Protein
   Protein packaged so that the animal immune system doesn’t recognize the protein source

   Homemade Diet – should be using a veterinary nutritionist
   www.petDIETS.com
   www.balanceit.com

Difficult to accurately identify sometimes
Hard to keep dog from eating anything other than one food for 10-12 weeks

Over-the-counter foods are not good Food Trial Diets
In a recent study 40% (of 52 foods) tested contained meat from a species not identified on the label
Pet food companies have 6 months to change a label after they have added something new to food and can change it back without changing label

Handout compiled by Dr. Patrick, New Haven Pet Hospital

References:
Multiple VIN handouts
Dermatology Specialty Center
Vet Associate
Multiple images from internet: Images of cat, specific dog breeds, allergy reaction, pollen, dust mite, skin allergy testing, mold, dust bunny, dog eating chocolate, dog eating grass, chicken, hamburger, itching dog, et al
Food study from JAVMA news May 15, 2015
Fun facts from animal league.org, petfinder.com, Wikipedia
Images of barrier defect taken from Bayer handout