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## Approach to the Pruritic Dog

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## Learning Objectives



- Review a case for a practical approach to the pruritic dog
- Clinical signs and diagnostic approach including differential diagnosis

## Mr. Fudge

### Signalment

- Canine
- West Highland white terrier
- Male neutered
- 6 years old



## Dermatological History

- Age of onset
- Familial history
- Type, localization, distribution and evolution of the lesions
- Location and severity of pruritus (VAS)
- Seasonality
- Response to previous treatments
- Other pets/humans affected
- History of gastrointestinal signs

10	Extremely severe itching / almost continuous Itching doesn't stop whatever is happening, even in the consulting room (needs to be physically restrained from itching)
8	Severe itching / prolonged episodes Itching might occur at night (if observed) and also when eating, playing, exercising or being distracted
6	Moderate itching / regular episodes Itching might occur at night (if observed), but not when eating, playing, exercising or being distracted
4	Mild itching / a bit more frequent Wouldn't itch when sleeping, eating, playing, exercising or being distracted
2	Very mild itching / only occasional episodes The dog is slightly more itchy than it was before the skin problem started
0	Normal dog - I don't think itching is a problem

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## Mr. Fudge's History

- 4 year history of non-seasonal pruritic skin disease
- Previous food trial with OTC venison and duck based diets for 6 weeks
- Previous improvement with oral antibiotics and prednisone therapy
- No other pets or humans affected
- Chronic semi-formed stool (4-5 bowel movements/day)
- VAS: 9/10

## Differentials

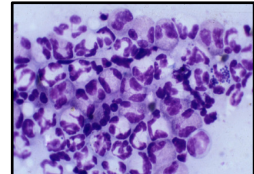
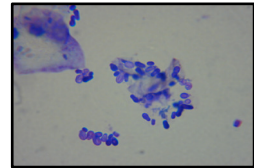
- Ectoparasites (fleas, scabies, demodex)
- Allergic skin disease
  - Atopic dermatitis
  - Adverse reaction to food
  - Flea allergy dermatitis
- Infectious
  - Superficial pyoderma, Malassezia dermatitis, dermatophytosis

## Diagnostic Tests

- Flea combing
- Superficial and deep skin scraping
- Skin cytology: impression smear beneath crusts
- Skin cytology: acetate tape preparation
- CBC/Chemistry/U/A/thyroid panel
- Fecal O/P and Giardia

## Results

- Flea combing: negative
- Skin scrapings: negative
- Skin cytology
- Add on aerobic culture: methicillin resistant *Staph pseudintermedius*
- Bloodwork: mild neutrophilia and monocytosis; mild hyperglobulinemia
- U/A: 2+ proteinuria; UPC < 0.30 (normal < 0.50)
- Fecal O/P Giardia: negative



## Treatment Plan

### Manage Infections:

-Oral fluconazole and chloramphenicol (based on C&S) x 30 days

-Topical Douxo® Chlorhexidine shampoo twice weekly

Provide Parasite Protection:  
-Topical selamectin every 4 weeks

### Follow up

-4 weeks

### Identify the Underlying Cause

-Food elimination dietary trial with Royal Canin® HP x 8-10 weeks

### Manage Gut Health:

-Oral Provable® Forte  
-Royal Canin HP



## Dietary History

- Specific foods
- Commercial snacks/treats
- Supplements
- Chewable medications
- Chew toys
- Human foods
- Access to other pet's foods
- Who feeds the pet?



## Food Elimination Dietary Trial

- A novel (never consumed) protein +/- carbohydrate
- Single whole or hydrolyzed protein
- Home-cooked or prescription diet
- Additive free
- Eight-ten weeks in duration
- If improvement is noted, important to challenge with previous diet and/or individual protein and carbohydrate sources

## Food Elimination Diet Trial and Challenge



## Mr. Fudge's Re-examination (4 wk)

- Body weight was stable and the HP diet had been fed exclusively for four weeks
- Compliance was excellent
- Stool consistency and frequency of defecation (3x/day) were improved
- Repeat cytology revealed resolution of infection
- Pruritus score 6/10 vs. 9/10 (VAS)

## Why Still So Pruritic?

- Additional time required on food trial for improvement
- Other concurrent allergy (atopic dermatitis)
- Ectoparasitism (unlikely)
- Persistent infection (not supported clinically or cytologically)

## Revised Treatment Plan

- Begin Apoquel® PO q 12 hours x 14 days, then q 24 hours x 14 days
- Continue shampoo therapy, probiotics, monthly selamectin and HP dietary trial
- Re-examination in six weeks

## Mr. Fudge's Re-examination (10 wk)

- Body weight was stable and the HP diet had been fed exclusively for ten weeks
- Compliance was still excellent
- Pruritus was improved - 2/10 (VAS) on Apoquel but increased to 4/10 after discontinuing
- Scheduled for intradermal skin testing



### Revised Treatment Plan

- Challenge back with previous diet with close observation over the next two weeks → flare with 9/10 (VAS)
  - Owner elected to continue feeding HP long term
- Begin immunotherapy (IT) injections
- Re-start Apoquel® and try to lower over time to determine if IT is beneficial
- Discontinue probiotics; continue shampoo therapy weekly and selamectin monthly

### Mr. Fudge Take Home

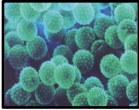
- Remember basic diagnostics including evaluating for infections and parasites
- Perform an aerobic culture when bacterial infection persists or in patients with a history of exposure to multiple antibiotics
- Treat infections for a minimum of 30 days
- If sustained improvement is documented on the food trial, don't forget to re-challenge!

### Mr. Fudge – Before and After

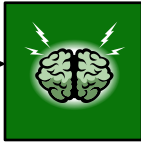


### What Is Pruritus?


An unpleasant sensation provoking desire to scratch . . . or itch, bite, rub, lick, scoot, chew, roll or shake



Stimulus



Perception



Response

## How Does Your Dog Exhibit Pruritus?

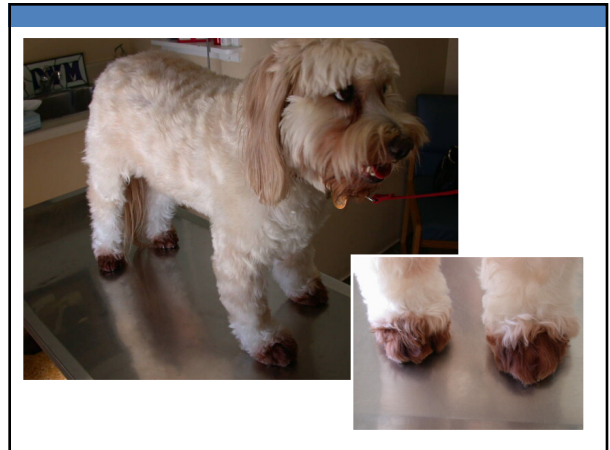


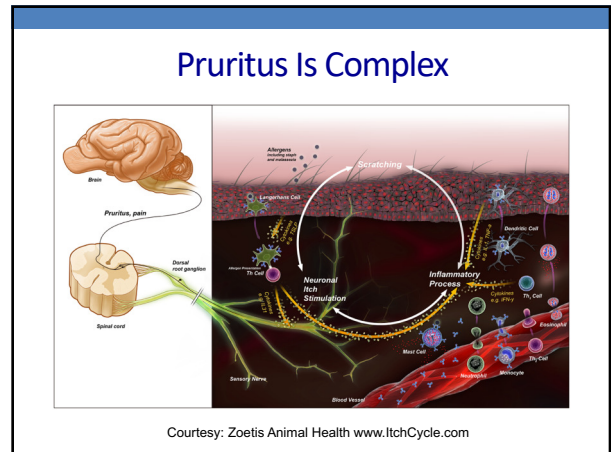
Pruritus is the most common reason why dogs present to a veterinary dermatologist



## Clinical Signs of Pruritus

- Erythema
- Alopecia
- Excoriation
- Salivary staining
- Presence of hair in the teeth
- Presence of hair in the feces or vomit





### Important Cytokine IL-31

- IL-31
  - Produced by Th2 lymphocytes
  - High levels in many allergic dogs
  - Direct stimulation of peripheral nerves
- Itch cytokine - few other functions known
- If non-atopic dogs injected with IL-31 → they start itching
- If IL-31 is blocked → they stop itching

### Signalment

- Age of appearance
  - Puppies → contagious/infectious disease
  - 3+ months → food allergy
  - 6-36 months → atopic dermatitis
  - Older dogs → neoplasia

### Diagnostic Approach - History

- Duration of pruritus
  - Often long duration and relapsing for allergies (months to years)
  - Short time for infectious, parasitic and some neoplastic diseases (days to weeks)
- Seasonality
  - Flea allergy dermatitis
  - Atopic dermatitis



### History

- Life style and environment; presence of zoonosis
  - Ectoparasites
  - Dermatophytes
- Therapy
  - Current parasiticide therapy?
  - Response to antibiotics → pyoderma
  - Response to glucocorticoids → atopic dermatitis
  - Poor response to glucocorticoids → sarcoptic mange or food allergy



### Signalment and History

Two dogs both rubbing face and chewing feet, one with dermatomyositis and the other with atopic dermatitis

### History – Chronic Pruritus Old Dog

Epitheliotropic Lymphoma

### Four-Step Approach to Pruritus

Rule-out / Treat Potentially Curable Underlying Causes First

- 1 Parasites
- 2 Pyoderma, yeast infection
- 3 Food allergy
- 4 Atopic dermatitis

Easier to Tx

Harder to Tx

### Differential Diagnoses for Pruritus

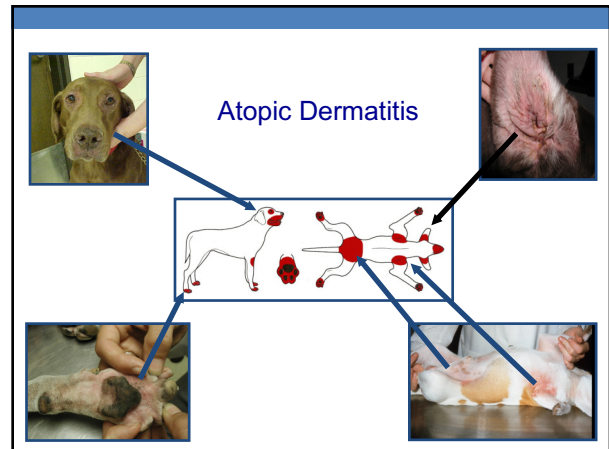
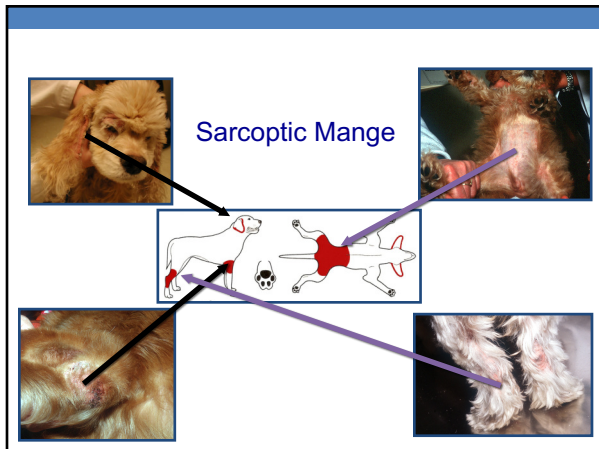
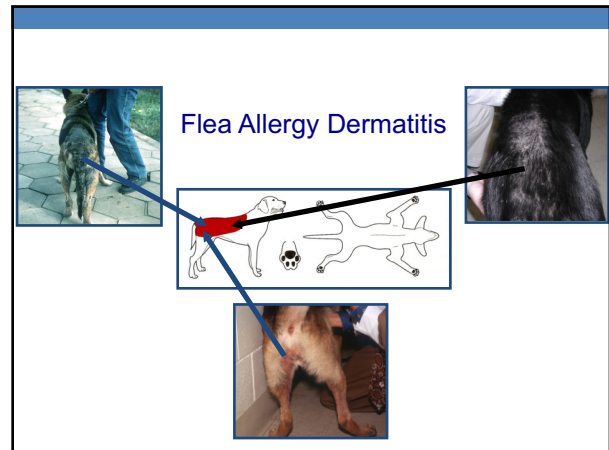
- Ectoparasites
  - Fleas, *Sarcoptes*, *Cheyletiella*, *Demodex*, *Otodectes*
- Infectious
  - Staphylococcal or *Malassezia* dermatitis, dermatophytosis
- Hypersensitivity
  - CAD, FAD, CAFR, contact allergy
- Immune-mediated disease
  - Pemphigus foliaceus, cutaneous drug reaction
- Neoplasia
  - Cutaneous lymphoma, mast cell tumor

### The Pruritic Dog

- Bacterial and/or yeast infection
  - Can aggravate a pruritic skin disorder
  - Can induce pruritus in a non-pruritic skin disorder

## Distribution of Pruritus

- Caudal body → pulicosis and flea allergy
- Dorsal body → *Cheyletiella*
- Ears only → food allergy, *Otodectes*, *Trombicula* > atopy
- Pinnae, elbows, abdomen, lateral limbs → sarcoptic mange
- Extremities → food allergy or atopy, pododemodiosis, trombiculosis



## Diagnostic Procedures for Pruritus

## Diagnostic Algorithm

1. Ectoparasite infestation  
↓
2. Infections  
↓
3. Allergic skin disease  
↓
4. Immune-mediated or neoplastic disease

## Evaluate and Treat for Parasites

- Dorsal pruritus with exfoliation
  - Acetate tape test or superficial scraping for *Cheyletiella*
  - Flea combing
- Acute pruritus on ears and lateral limbs and abdomen
  - Superficial scrapings for *Sarcoptes*
- Pruritus of posterior body
  - Flea combing

## Acetate Tape Preparation



## Superficial and Deep Skin Scraping



## Evaluate and Treat for Parasites

- Seasonal pruritus on muzzle, extremities and pinnae
  - Trombiculae, insects and atopic dermatitis
  - Empirical treatment with broad spectrum parasiticide product

## Isoxazolines

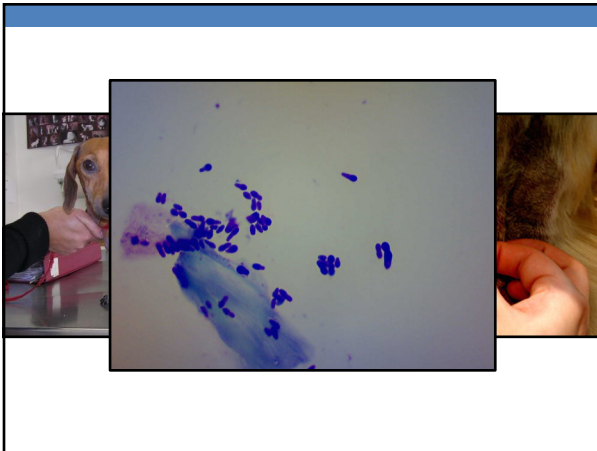
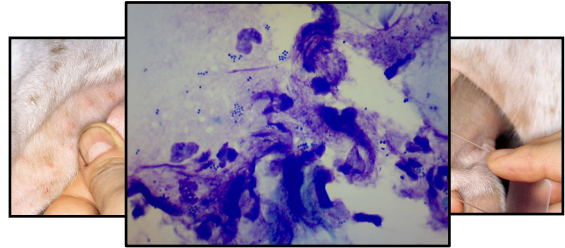
- Afoxolaner (Nexgard™, Merial)
- Fluralaner (Bravecto®, Merck)
- Lotilaner (Credelio™, Elanco)
- Sarolaner (Simparica™, Zoetis)



## Evaluate and Treat for Infections

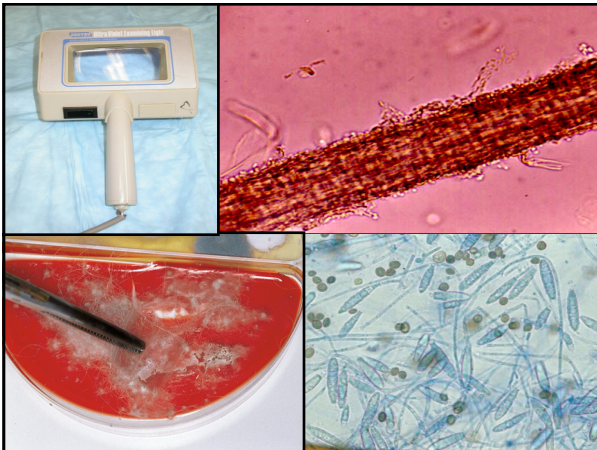
- Skin cytology:
  - Presence of bacteria → pyoderma
  - Presence of yeast → *Malassezia* dermatitis
- Oral and/or topical antibiotic/antifungal therapy for 3 weeks in combination with parasiticide
- Re-evaluate the lesions after treatment
  - If pruritus is still present → consider allergy

## Cytology - Impression Smear



## Evaluate for Dermatophytosis

- Wood's lamp examination
- Trichoscopic examination
- Fungal culture +/- PCR
- Fungal identification



## Evaluate for Allergic Disease

- Evaluate the localization of pruritus
  - Dorsal body → flea allergy
  - Extremities, head and abdomen → food allergy or atopic dermatitis
  - Points of contact → contact allergy

## Differentiate Between Allergies

- Suspect flea allergy
  - Flea control for 8 weeks → if not improved, then hypoallergenic diet for 8-10 weeks
- Suspect food allergy/atopic dermatitis
  - Hypoallergenic diet for 8-12 weeks → if not improved, consider work up for atopic dermatitis

If clinical signs and response to treatment does not support allergic skin disease, collect several skin biopsies to evaluate for:

- Immune-mediated diseases (pemphigus foliaceus)
- Neoplasia (epitheliotropic lymphoma, other)



## Acknowledgments

Pat Boland  
Dr. Joseph Nkhoma  
Dr. Gladson Kamwendo  
Lieza Swennen  
Dr. Lawson Cairns



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