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2025
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JANUARY 25-29
ORLANDO, FLORIDA
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# Things That Cats Do:
## Feline Allergic Skin Disease

Presenter:  Heather Akridge, DVM, DACVD

January 26, 2025

# Conflict of Interest Disclosure:

I have financial interest, arrangement or affiliation with IDEXX Laboratories, Inc:

**Full-time employee, Medical Consulting Services Dermatology**

The information contained herein is intended to provide general guidance only. As with any diagnosis or treatment you should use clinical discretion with each patient based on a complete evaluation of the patient, including history, physical exam and presentation, and laboratory data. With respect to any drug therapy or monitoring program, you should refer to applicable product insert(s) for complete description of dosage, indications, interactions, and cautions. Diagnosis, treatment, and monitoring should be patient specific and is the responsibility of the veterinarian providing primary care. (2024)

Images courtesy of Heather Akridge, DVM, DACVD

Addie

Gigi and Leo

**Feline Atopic Syndrome** – encompasses allergic disease of skin, gastrointestinal and respiratory tract

- Environmental allergens
- Maybe associated IgE antibodies

**Feline Atopic Skin Syndrome** – used to describe allergic skin disease associated with environmental allergies in cats

- Must rule out contact, insect, flea and food allergic triggers
- Non-Flea and Non-Food Hypersensitivities

Halliwell R, Pucheu-Haston CM, Olivry T, Prost C, Jackson H, Banovic F, et al.. Feline allergic diseases: introduction and proposed nomenclature. Vet Dermatol. 2021 Feb;32(1):8-e2. doi: 10.1111/vde.12899.

# Agenda –Evaluation of Skin Disease in Cats

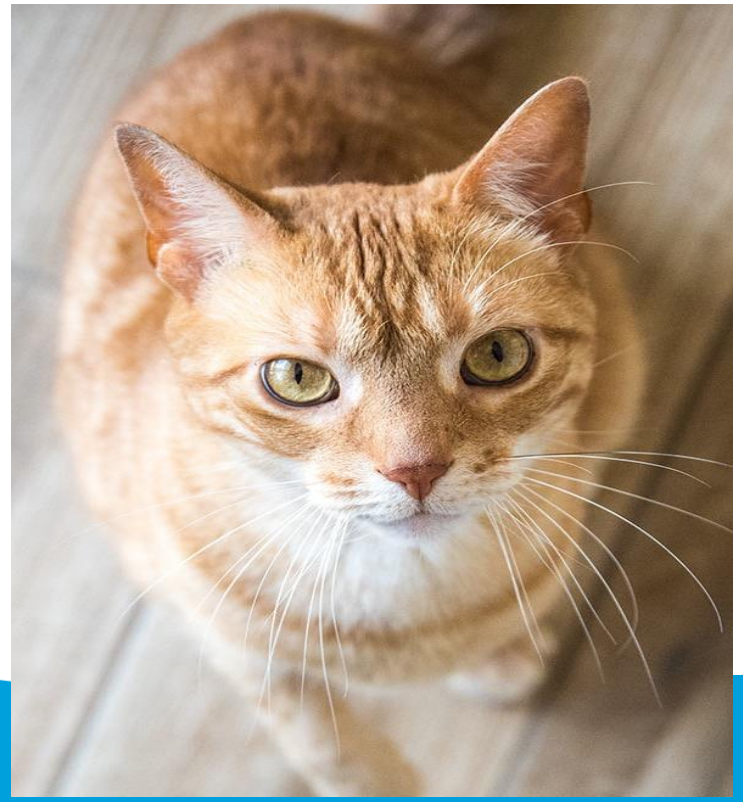
1. History and Examination
2. Diagnostic Tests
3. Clinical Signs
4. Cutaneous Reactions Patterns
5. Hypersensitivity Diseases

Clinical images in this presentation are courtesy of Karen Moriello, DVM, DACVD and the University of Pennsylvania School of Veterinary Medicine, Department of Dermatology Residency and Teaching Materials. These images have been removed from prioceedings at the owners request.

# History and Examination

- Takes Time
  - Time Saving Ideas
    - Pre-printed forms for clients
    - Pre-printed laminated form
    - Online evaluation before appointment
- Dermatologic Exam
  - Look at all the right places
  - Photos (before and after)
    - Helpful for owner, you and your colleagues
  - Palpate, Good light
  - Sample lesions as found

# History….History….History



- Origin of pet (rescue, barn animals); Travel History?
- Environments (internal and external); Changes?
  - Carpet, Bedding, Asian Jasmine/Wandering Jew, Ponds/Lakes
- **Is the pet itchy?** Seasonal or Non-Seasonal?
  - What parts of body? How itchy on scale 0-10?
  - Itch before lesions? Or Lesions before itch?
- Age of Onset? Duration? Distribution? Progression?

# History….History….History

- Diet? Treats?
- Drugs? Supplements? HWP/Flea Control?
- Topicals?
- Response to treatment (steroids, antihistamines, antibiotics)?
- Other pets in the household? Transmission to animals or humans?

# Dermatologic Examination

- Screen Entire Body
- Most important areas to consider:
  - Face
  - Paws (paw pads and interdigital)
  - Ear canals and pinnae
  - Groin
  - Mucocutaneous junctions
- Don’t forget:
  - Claws
  - Oral cavity
  - Lymph nodes

# What To Do Next?

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# Diagnostic Tests

- **Flea Combing**
- Wood's Lamp
- **DTM or Dermatophyte PCR**
- Trichogram (oil prep, hairs, coverslip, 10x)
- Otic Mite Prep
- **Skin Scraping** (oil prep, coverslip, 10x)
  - Deep
  - Superficial
- **Cytology**
  - Skin (Direct Impression, Adhesive/Tape, FNA)
  - Otic
- Skin Biopsy (Dermatopathology)
- Bacterial Culture & Susceptibility
- Flea Control Trial
- Lime Sulfur Trial
- Elimination Diet Trial
- Allergy Testing
  - Intradermal allergy testing vs in vitro serum

**Source.** Miller WH, Griffin CE, Campbell KL. Muller & Kirk's Small Animal Dermatology, 7th Edition. St Louis, MO: Elsevier Mosby; 2013

# Clinical Signs

- Pruritus
  - Secretive in behavior
  - Hairballs, hair in stool
  - Over-grooming, nibbling, biting
  - Nail biting and toe licking
- Alopecia

  Self-induced until proven otherwise
- Cutaneous Reaction Patterns

  NOT a diagnosis

  Clinical presentation to an underlying disease

# Cutaneous Reaction Patterns

- **Miliary Dermatitis**
- **Eosinophilic Granuloma Complex**
  - Indolent/Rodent Ulcer
  - Eosinophilic Plaque
  - Eosinophilic Granuloma
- **Symmetrical Alopecia**
- **Facial/Neck Pruritus**
- Feline Chin Acne
- Scaling/Crusting- Head/Pinnae
  - Allergy
  - Dermatophytosis
  - Parasitic
  - Immune-mediated
  - Neoplasia
  - Secondary infection
- Erosive/Ulcerative Dermatoses
  - Immune-mediated
  - Drug reaction
  - Neoplasia
  - Secondary infection

# Cutaneous Reaction Patterns

**Eosinophilic Plaque**

**Indolent/Rodent Ulcer**

**Facial/Neck Pruritus**

**Symmetrical Alopecia/Bald Belly**

**Miliary Dermatitis**

**Linear Eosinophilic Granuloma**

# Miliary Dermatitis

- Ddx
  - Allergy
    - Flea, atopy, food
  - Dermatophytosis
  - Bacterial folliculitis
  - Parasitic
  - Pemphigus foliaceus
  - Mast cell disease
    - Urticaria pigmentosa

# Eosinophilic Granuloma Complex

**Indolent Ulcer "Rodent Ulcer"**

**Chronicity can lead to fibrosis**

- Ddx
  - Allergy
    - Flea, atopy, food
  - Infection
    - Bacterial, viral, fungal
  - Neoplasia
    - Squamous cell carcinoma, cutaneous lymphoma, mast cell tumor
  - Metabolic
  - Idiopathic

# Indolent Ulcers

**Active**

**Healing and Scarring**

# Eosinophilic Granuloma Complex

**Eosinophilic Plaque**

- Ddx
  - Allergy
    - Flea, atopy, food
  - Dermatophytosis
  - Infection
    - Bacterial, fungal, viral
  - Neoplasia
    - Cutaneous lymphoma, mast cell tumor, squamous cell carcinoma, mammary carcinoma
  - Idiopathic

# Eosinophilic Plaque

**Direct impression cytology**

# Eosinophilic Granuloma Complex

**Eosinophilic Granuloma** | **Linear Granuloma**

- Ddx
  - Allergy
    - Flea, atopy, food
  - Insect Bite Reaction
  - Dermatophytosis
  - Infection
    - Bacterial, fungal, viral-oral
  - Neoplasia
    - Cutaneous lymphoma, mast cell tumor, squamous cell carcinoma, fibrosarcoma, plasma cell stomatitis
  - Idiopathic

# Eosinophilic Granulomas

**Paw Pad**

**Interdigital**

Swollen chin

# Eosinophilic Granulomas

# Symmetrical Alopecia/Bald Belly

- Ddx
  - Allergy
    - Flea, atopy, food
  - Parasitic
    - *Demodex (cati or gatoi)*
    - *Scabies*
    - *Cheyletiella*
    - *Notoedres*
    - *Otodectes*
  - Hyperthyroidism
  - Pain (orthopedic, urinary, nerve)

# Facial/Neck Pruritus

- **Ddx**
  - **Allergy**
    - Food, atopy, flea
  - **Parasitic**
    - *Notoedres cati*
    - *Sarcoptes scabiei*
    - *Otodectes cynotis*
    - *Cheyletiella blakei*
    - *Demodex cati* or *gatoi*
  - **Drug Reaction- Methimazole**
  - **Dermatophytosis**
  - **Neoplasia**
    - Bowenoid in situ carcinoma
    - Squamous cell carcinoma, cutaneous lymphoma, mast cell tumor
    - Feline Progressive Histiocytic Disease

Allergy

# Facial/Neck Pruritus

# Facial/Neck Pruritus

**Arthrospores in hair shaft on a trichogram**

**Dermatophytosis**

# Facial/Neck Pruritus

**Bowenoid in situ carcinoma**

**Methimazole Reaction**

# Feline Chin Acne

- Common disease
- Comedones → Furunculosis
- Chin- large amount of sebaceous glands
- Disorder of keratinization
  - Distended, plugged hair follicles→ rupture→ infection
- Rule out
  - *Demodex*
  - Dermatophytes
  - Secondary bacterial infection
  - Neoplasia
  - Allergy

# Scaling/Crusting of Head & Pinnae

- Ddx
  - Allergy
  - Dermatophytosis
  - Parasitic
    - *Notoedres, Otodectes, Demodex gatoi*
  - Autoimmune/Immune-mediated
  - Neoplasia
  - Drug reaction
  - Secondary infections

# Scaling/Crusting of Head & Pinnae

**Dermatophytosis**

***Demodex gatoi*** **from superfical skin scraping**

**Arthrospores in hair shaft on a trichogram**

# “Head Mange”

***Notoedres***

# Superficial Mites

***Cheyletiella***

***Demodex gatoi***

***Otodectes***

***Notoedres***

# Pemphigus foliaceus

# Pemphigus foliaceus

**Acantholytic cells from direct impression cytology**

# Erosive/Ulcerative Dermatoses

- Ddx
  - Immune-mediated
    - Pemphigus (PF, PV, PE)
    - Bullous pemphigoid, mucous membrane pemphigoid
    - Lupus Erythematosus (systemic, discoid)-rare
  - Fungal
  - Viral
  - Drug Reaction
  - Neoplasia

# Erosive/Ulcerative Dermatoses

***Sporothrix schenckii***

**Pemphigus**

# Erosive/Ulcerative Dermatoses

**Amoxicillin reaction**

**Herpes**

Images courtesy of Heather Akridge, DVM, DACVD

# Factors and causes

Veterinary Dermatology

AN INTERNATIONAL JOURNAL

**Clinical characteristics and causes of pruritus in cats: a multicentric study of feline hypersensitivity-associated dermatoses**

- 86/588 cats (~15%):  diagnosis unclear or more than 1 diagnosis
- 74/502 (14.7%) diagnosed as “non flea hypersensitivity” because owners or cats could not or would not comply with dietary elimination trial.
- 146/502 (29%) were diagnosed flea hypersensitivity (most common cause of chronic pruritus in cats whether clients want to believe it or not)
- 121/502 (24%) diagnosed with non-hypersensitivity diseases
- Total parasitic cases (fleas plus cutaneous parasites) ~39%
- 100/502 (20%) Non-Flea/Non-Food = feline atopic dermatitis (now known as Feline Atopic Skin Syndrome)

**Source:** Hobi S, Linek M, Marignac G, Olivry T, Beco L, Nett C, et al. C. Clinical characteristics and causes of pruritus in cats: a multicentre study on feline hypersensitivity-associated dermatoses. Vet Dermatol. 2011 Oct;22(5):406-13. doi: 10.1111/j.1365-3164.2011.00962.x.

# Hypersensitivities = Allergic Dermatitis

- Clinical characteristics and causes of pruritus in cats: a multicentric study on feline hypersensitivity associated dermatoses.
  - 121/502 (24%) of cats were non-allergy cause of pruritus
    - 31 different diseases (parasitic, autoimmune, fungal, neoplastic, psychogenic, viral, isolated otitis externa, bacterial and other)
    - Facial/neck pruritus most common pattern in this group
- Flea Allergy Dermatitis
- Cutaneous Adverse Food Reaction
- Atopic Dermatitis
- Insect Hypersensitivities
- Parasitic Hypersensitivities

***Cats can have multiple concurrent allergic causes***

**Source:** Hobi S, Linek M, Marignac G, Olivry T, Beco L, Nett C, et al. C. Clinical characteristics and causes of pruritus in cats: a multicentre study on feline hypersensitivity-associated dermatoses. Vet Dermatol. 2011 Oct;22(5):406-13. doi: 10.1111/j.1365-3164.2011.00962.x.

# Flea Allergy Dermatitis

- Makes up 29% of hypersensitivity cases
- Miliary dermatitis most common pattern
- Most common cause of chronic pruritus
- Owners don’t want to believe it
  - Many FAD cats do NOT live in flea-infested environments
- ~30% of all pruritic cats will respond to flea control
- Etiology: protein in flea saliva (only small number needed)
- Often caudal half of the body as well as face, head and neck
- Itchy cats have flea allergies until proven otherwise!

**Source:** Hobi S, Linek M, Marignac G, Olivry T, Beco L, Nett C, et al. C. Clinical characteristics and causes of pruritus in cats: a multicentre study on feline hypersensitivity-associated dermatoses. Vet Dermatol. 2011 Oct;22(5):406-13. doi: 10.1111/j.1365-3164.2011.00962.x.

# Flea Allergy Dermatitis

- Treatment:
  - Prevention of fleas is key
  - Reduce exposure to flea saliva by using products which kill or incapacitate fleas as quickly as possible (oral and topical )
  - Important that ALL pets in the household are receiving consistent, good quality flea prevention year round
  - If the home/yard are infested, treating the environment will be essential
    - May need to be treated more than once due to length of flea life cycle

# Cutaneous Adverse Food Reaction

- Etiology not fully understood
- Often animal based protein
  - Common offenders: chicken, beef, lamb, dairy, fish
- Longer protein is consumed more likely to induce hypersensitivity
- Age onset ranges from young to old
  - Under a 1 year (especially under 6 months) and older than 6 years
  - Mean age 4-5 years
- Mostly non-seasonal
- Breeds:  Siamese

**Source:** Hobi S, Linek M, Marignac G, Olivry T, Beco L, Nett C, et al. C. Clinical characteristics and causes of pruritus in cats: a multicentre study on feline hypersensitivity-associated dermatoses. Vet Dermatol. 2011 Oct;22(5):406-13. doi: 10.1111/j.1365-3164.2011.00962.

# Cutaneous Adverse Food Reaction

- 61/502 (12%) diagnosed with positive response to diet trial; some studies show up to 16%
- Least common cause of pruritus in cats
- Gastrointestinal issues
- Facial/Neck pruritus most common (check for otitis)
- 8 to 12 week diet elimination trial (this included the 2 weeks challenge phase at the end)
  - Novel protein
  - Hydrolyzed
  - Home-cooked
- Treat secondary infections and control pruritus during elimination trial
- May take more than 1 diet trial to diagnose

**Source:** Hobi S, Linek M, Marignac G, Olivry T, Beco L, Nett C, et al. C. Clinical characteristics and causes of pruritus in cats: a multicentre study on feline hypersensitivity-associated dermatoses. Vet Dermatol. 2011 Oct;22(5):406-13. doi: 10.1111/j.1365-3164.2011.00962.x

# Atopic Dermatitis

- 100/502 (20%) feline atopic dermatitis
  - Diagnosis of exclusion
  - Often glucocorticoid & cyclosporine responsive
- 72% cats had clinical signs develop < 3 years
- 12% cats had signs develop > 6 years
- Abdomen and extremities more affected
- All 4 cutaneous reaction patterns represented
  - Symmetrical alopecia and Eosinophilic granuloma complex most common
  - Otitis externa
  - Several cats had 2 reaction patterns

**Source:** Hobi S, Linek M, Marignac G, Olivry T, Beco L, Nett C, et al. C. Clinical characteristics and causes of pruritus in cats: a multicentre study on feline hypersensitivity-associated dermatoses. Vet Dermatol. 2011 Oct;22(5):406-13. doi: 10.1111/j.1365-3164.2011.00962.x

# Atopic Dermatitis

- Etiology:
  - Hypersensitivity mediated by IgE
  - Respiratory or percutaneous exposure
  - Skin barrier dysfunction
- Pollens from grasses, trees, weeds
- Dust mites, storage mites, dander, insects, molds

**Source.** Miller WH, Griffin CE, Campbell KL. Muller & Kirk's Small Animal Dermatology, 7th Edition. St Louis, MO: Elsevier Mosby; 2013.

# Atopic Dermatitis

- Signalment:
  - Age of onset: 6 months to 8 years of age (most 6 months to 3 years).
  - Persians, Himalayans, Abyssinians may be predisposed
- Lifestyle:
  - May be indoor, outdoor, or both
  - Single or multi pet household
  - City, suburb, rural environment, etc.

**Source.** Miller WH, Griffin CE, Campbell KL. Muller & Kirk's Small Animal Dermatology, 7th Edition. St Louis, MO: Elsevier Mosby; 2013

# Atopic Dermatitis

- DO NOT use allergy testing to diagnose atopic dermatitis!
  - Only perform allergy testing if owners want to proceed with immunotherapy
- Diagnosis of exclusion. Rule out other reasonable causes of clinical signs:
  - Flea Allergy Dermatitis
  - Cutaneous Adverse Food Reaction
  - Parasites
  - Infections
  - Other-Immune mediated, etc
- Pruritus typically steroid responsive
- Respiratory signs are variable: rhinitis, chronic cough, dyspnea accompanied by wheezing

**Source.** Miller WH, Griffin CE, Campbell KL. Muller & Kirk's Small Animal Dermatology, 7th Edition. St Louis, MO: Elsevier Mosby; 2013.

# Atopic Dermatitis

- Treatment:
  - Allergy Testing and Immunotherapy
    - Specific for each patient
    - Does not dampen or suppress immune system
    - Not just a bandage for pruritus and inflammation
    - Only treatment chance of “curing” atopic dermatitis
    - Options: Subcutaneous vs Sublingual
      - They are different (pros and cons) –efficacy similar
      - Can take up to 1-1.5 years to see improvement
      - If one form fails, then try the other
      - Often life-long treatment but sometimes can be weaned off after 3-5 years of good control

**Source.** Miller WH, Griffin CE, Campbell KL. Muller & Kirk's Small Animal Dermatology, 7th Edition. St Louis, MO: Elsevier Mosby; 2013.

# Insect “Mosquito” Hypersensitivity

- Bridge of nose and pinnae
  - (erosions and crust)
- Eyelids, foot pads, chin, lips
  - (papular, crust to nodule and swelling paw pads)
- Ddx:  Ulcerative Herpes Dermatitis

- Seasonal
- Type I hypersensitivity
- Outdoor exposure

**Source.** Miller WH, Griffin CE, Campbell KL. Muller & Kirk's Small Animal Dermatology, 7th Edition. St Louis, MO: Elsevier Mosby; 2013.

# Parasitic Hypersensitivity

- 10% of cases
- 39% had parasitic etiology when including FAD
- Diagnostics
  - Flea comb
  - Superficial skin scraping
  - Fecal- *Demodex gatoi* as well intestinal parasites
  - Heartworm test
  - Response to trial
    - Selamectin vs. Moxidectin
    - Lime sulfur
    - Isoxazoline

**Source:** Hobi S, Linek M, Marignac G, Olivry T, Beco L, Nett C, et al. C. Clinical characteristics and causes of pruritus in cats: a multicentre study on feline hypersensitivity-associated dermatoses. Vet Dermatol. 2011 Oct;22(5):406-13. doi: 10.1111/j.1365-3164.2011.00962.x

# Non-Hypersensitivity Disorders

- Autoimmune > fungal > neoplastic > viral > misc.
- 24% of cases NOT allergies
  - ~18% were non-parasitic
- Clinical Presentation (patterns)
  - Alopecia
  - Ears
  - Head/Nasal Planum
  - Paw/Paw Pad/Claw

**Source:** Hobi S, Linek M, Marignac G, Olivry T, Beco L, Nett C, et al. C. Clinical characteristics and causes of pruritus in cats: a multicentre study on feline hypersensitivity-associated dermatoses. Vet Dermatol. 2011 Oct;22(5):406-13. doi: 10.1111/j.1365-3164.2011.00962.x

# Non-Hypersensitivity Disorders

## Alopecia

- Pre-Auricular
- Pinnal Alopecia
- Post-traumatic Alopecia
- Effluvium
- Pseudopelade
- Paraneoplastic

## Rare Diseases

- Feline Ceruminous Cystomatoses
- Proliferative Necrotizing Otitis
- Plasma Cell Pododermatitis
- Facial Dermatitis of Persians

# Working with Frustrated Owners

- Determine the URGENCY
  - Medical perspective
  - Client perspective
- Flow chart of the PLAN
  - Visual and helps chart progress and response
  - Help client understand step-by-step process
  - Reminder for veterinarian(s) managing case
- Diagnostics should answer a question
  - Remind the client the ?
- Response to Treatment Trials

# Thank you!

# Questions

Image courtesy of Heather Akridge, DVM, DACVD


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