The Approach to the Pruritic Cat

Sheila M. F. Torres, DVM, MS, PhD, Dipl ACVD
Full Professor of Veterinary Dermatology
University of Minnesota
Summary

- How to determine if the cat is pruritic?
- Diseases that are typically pruritic
- The approach
  - History
  - Clinical presentations of pruritic diseases
  - Diagnostic methods
  - General management
The Pruritic Cat

- Pruritus or itch is a common clinical sign of cats with dermatological disorders

- What are the challenges?
  - To confirm that the cat is itchy
  - To determine the cause that elicited the itch
First step to determine if the cat is itchy:

- Thorough history and physical examination
History

➢ Is the cat itching?
  » Chewing, over-grooming, scratching, rubbing, and/or pulling out hairs

➢ Answers:
  » YES ittance owners do witness the cat itching
  » NO or I DO NOT KNOW ittance owners do not witness the cat itching

Cats can and often will hide to itch!
What can you do to determine if the cat is itchy?
Make the cat wear a device

Trichoscopy

Fast process

Slow process
Evidence of pruritus on physical examination...

Helps when owners negates seeing the itching behavior
# Pruritic Skin Diseases

## Hypersensitivities
- Flea bite allergy
- Food allergy
- Atopic dermatitis
- Mosquito bite allergy
- Contact allergy

## Other causes
- Surface demodicosis
- Cheyletiellosis
- Notoedric mange
- Otodectic mange
- Lice
- Dermatophytosis
- Herpes virus dermatitis
- Thymoma-associated exfoliative dermatitis
Let’s briefly review the clinical presentations of the most common pruritic diseases.
Clinical Presentations

- Miliary dermatitis
- Symmetrical non-inflammatory alopecia
- Eosinophilic granuloma complex
- Head and neck pruritus
- Scaling

Unfortunately these are not specific!
Clinical Presentation

Miliary Dermatitis

Multiple and small papules covered with crusts
Often associate with self-induced alopecia

Typical of flea bite allergy
Also present in other disorders

Distribution can be helpful!
Hypersensitivities

Flea Bite Allergy

Clinical signs are very characteristic...

Presence of fleas or flea feces support a diagnosis...

Miliary dermatitis and self-induced alopecia on the caudal aspect of the body

Acute moist dermatitis
Sign of itch!
Miliary Dermatitis

Not on caudal aspect of body

Atopic dermatitis
Food allergy
Flea bite allergy
Mosquito bite allergy
Parasitic diseases
Dermatophytosis
Clinical Presentations

- Miliary dermatitis
- Symmetrical non-inflammatory alopecia
- Eosinophilic granuloma complex
- Head and neck pruritus
- Scaling
Symmetrical Non-Inflammatory Alopecia

Non-inflammatory alopecia
Typically symmetrical in distribution

It is self-induced until proven otherwise
It can be a challenge to prove!

Trichoscopy!
Symmetrical Non-Inflammatory Alopecia

What does the cat do?

Overgroom
Nibble
Pull hair out

Puritic or Psychogenic behavior?
Symmetrical Non-inflammatory Alopecia

The Nightmare of Dermatologists!
Differentials

Food allergy
Atopic dermatitis
Parasitic disorders
Psychogenic
Internal diseases
Clinical Presentations

- Miliary dermatitis
- Symmetrical non-inflammatory alopecia
  - Eosinophilic granuloma complex
  - Head and neck pruritus
  - Scaling
Eosinophilic Granuloma Complex

Eosinophilic Plaque
Eosinophilic Ulcer
Eosinophilic Granuloma

More than one lesion type can be present on the same animal

Look for an allergic cause!
Eosinophilic Ulcer or Indolent Ulcer
Eosinophilic Granuloma

Different Clinical Presentations

Linear Lesions
Eosinophilic Granuloma
Different Clinical Presentations

Nodules
Eosinophilic Granuloma
Different Clinical Presentations

Pouting lip and swollen chin
Eosinophilic Granuloma

Different Clinical Presentations

Mouth Lesions
Look for an allergic cause!

Food allergy
Atopic dermatitis
Flea bite allergy

Start with a food trial if signs are not suggestive of flea allergy!
Clinical Presentations

- Miliary dermatitis
- Symmetrical non-inflammatory alopecia
- Eosinophilic granuloma complex
- Head and neck pruritus
- Scaling
Head and Neck Pruritus

Atopic dermatitis
Food allergy
Flea bite allergy
Mosquito Bite Allergy
Otoacariosis
Notoedric mange
Dermatophytosis
Herpes virus dermatitis
Idiopathic facial dermatitis
Clinical Presentations

- Miliary dermatitis
- Symmetrical non-inflammatory alopecia
- Eosinophilic granuloma complex
- Head and neck pruritus
- Scaling
Scaling

Cheyletiellosis
Thymoma-associated exfoliative dermatosis
Cutaneous lymphoma
Pruritus Distribution

Caudal Body

Head & Neck

Flea allergy

Non Specific

All causes

Allergy
Herpes virus dermatitis
Dermatophytosis
Otoacariosis
Notoedric mange
Pruritic Behavior

History

Licking:
- air
- owner
- objects

Pulling out hair

Parasitic disorders

Psychogenic
Seasonality of Pruritus

Seasonal
- Atopic dermatitis
- Flea allergy
- Mosquito bite allergy

Non seasonal
- All differentials
**History**

**Age of Onset**

6m – 3y

- Flea allergy
- Food allergy
- Atopic dermatitis
- Dermatophytosis

Any age

- Mosquito-bite allergy
- Herpes virus dermatitis
- Parasitic

> 6y

- Food allergy
- Cutaneous lymphoma
- Thymoma-associated exfoliative dermatitis
No clear evidence of breed predilection has been documented for any of these pruritic disorders with the exception of…
Persian cats are prone to idiopathic facial dermatitis.
5 possible clinical presentations

- Miliary dermatitis
- Symmetrical non-inflammatory alopecia
- Eosinophilic granuloma complex
- Head and neck pruritus
- Scaling
Clinical Findings

Non-skin related

Non-specific:
- fever
- lethargy
  ↓ appetite

GI signs
- Food allergy

Respiratory signs
- Viral diseases
  TAED
- Mucosal lesions

Cutaneous lymphoma
- TAED
- Viral disease

Viral disease
- Cutaneous lymphoma
Diagnostic Tests

- Trichoscopy
- Skin scrapings
- Cytology
- Fecal flotation
- Flea combing

History + physical findings will help select the best tests

- Allergy testing
- Biopsy
What Should I Do?

Diagnostic Tests

Cytology

Flea Comb

Parasiticidal trial
Diagnostic Methods

What Should I Do?

RUN!
What Should I Do?

Diagnostic Methods

- skin scrapings ± fecal flotation
- trichoscopy
- GC trial
- parasiticidal trial
- food trial
- allergy testing
What Should I Do?

Diagnostic Methods

- Biopsy?
- Allergy tests?
- GC trial

Food trial

- Cytology
- Surface
- FNA
- Inflammation
- GC trial
Diagnostic Methods

What Should I Do?

- Cytology
- Skin scrapings
- Allergy testing
- Food trial
- GC trial
- Parasiticidal trial
Diagnostic Methods

Other tests I should consider...

- Trichoscopy ± Fungal culture
- Otic examination
- Parasiticidal trial
- Look for other causes
- Treat
What Should I Do Differently?

- Biopsy!
- Cytology
- Surface
- FNA
- Allergy testing
- Skin scrapings
- Parasiticidal trial
- GC trial
- Food trial
Diagnostic Methods

What Should I Do?

- Biopsy!
- Erythema
- Adhered scales
- Old cat

- Trichoscopy
- Skin scrapings
- Tape preparation
- Fecal flotation

- Parasiticidal trial
Tailored to the Pruritic Cause

Hypersensitivity
- Non flea-induced
- Flea-induced
- Mosquito bite

Parasitic or Infectious
- Surface demodicosis
- Cheyletiellosis
- Otoacariosis
- Notoedric mange
- Dermatophytosis

Neoplastic or Paraneoplastic
- CTL
- TAED
Non-flea induced allergies

Atopic Dermatitis:
- Glucocorticoids
- Cyclosporine
- Anti-histamines
- EFAs
- Allergen-specific immunotherapy

Food Allergy:
- Special diet
- Glucocorticoids
- Cyclosporine
- Anti-histamines
- EFAs
Oral Glucocorticoids

- Start with oral short-acting
  - Prednisolone or methylprednisolone:
    - Induction: 2 mg/kg/day
    - Maintenance: 0.5 – 1.0 mg/kg every-other-day

Rarely a dose as high as 4 mg/kg/day may be needed as an induction dose
Other options – intermediate-acting

- Dexamethasone or triamcinolone:
  - Induction: 0.1-0.2 mg/kg/day
  - Maintenance: 0.05-0.1 mg/kg every-other-day or less frequently
Injectable Glucocorticoids

- Methylprednisolone acetate
  - 4-5 mg/kg SC or IM every 12 weeks

Try to avoid it if possible!

Stronger effect on HPA axis

Higher risks for diabetes mellitus!
Possible Side Effects

- Diabetes mellitus
  - Long > intermediate > short acting GC
- Iatrogenic Cushing’s
- UTI
- Congestive heart failure
Topical Glucocorticoids

- 0.015% triamcinolone acetonide spray (Genesis®)
  - BID for 7 days, SID for 7 days, EOD for 14 days

Be careful with skin atrophy!
Topical Glucocorticoids

- Hydrocortisone aceponate spray (Cortavance®)
  - Non-halogenated double ester glucocorticoids metabolized in the skin
  - 2 sprays at 10X10 cm lesional area, daily until remission (typically 14 days) then the lowest dose that controls the disease

Treatment

- No risk for iatrogenic Cushing’s
- No or minimal skin atrophy!
Topical Glucocorticoids

- Ointments or creams containing glucocorticoids (e.g. Otomax®, Mometomax®, Tri-Otic®)
  - Typically also contain an antibacterial and antifungal
  - The glucocorticoids are typically potent

Be careful with skin atrophy!
Treatment
Glucocorticoids
Important points to remember!
Glucocorticoids

Cats are, in general, more resistant to the side effects of glucocorticoids than dogs but…
Atopic Dermatitis

Cyclosporine

- Atopica® - Novartis - Capsule or Liquid (Atopica® for Cat)
  - 7-7.5 mg/kg/day
  - Lag-phase – 4 weeks
  - If improvement
    » Reduce the daily dose or give every-other-day or less often
    » Aim – lowest dose that keeps the disease satisfactorily controlled with minimal side effects
Side Effects

**Common**
- Vomiting
- Diarrhea

**Uncommon**
- Gingival hyperplasia
- Toxoplasmosis
- Anorexia
- Hyperactivity
- Hypersalivation
- Neoplasia
Cyclosporine

Side Effects

Avoid concurrent use with glucocorticoids

Doxycycline, erythromycin, ketoconazole, itraconazole and fluconazole inhibit the metabolism of cyclosporine increasing plasma levels and the risk for side effects.
Antihistamines

- Perform a trial: each for 7-14 days
  - Chlorpheniramine: 2-4 mg/cat q 8-12h
  - Cetirizine: 5mg/cat or 1 mg/kg q24h
  - Amitriptyline: 0.5-1 mg/kg q 12h
  - Hydroxyzine: 2 mg/kg q 12h
  - Cyproheptadine: 2 mg/cat q 12h
  - Diphenhydramine: 2.2 mg/kg q 12h

Sedation is the main side effect and it may be beneficial
Essential Fatty Acids

- Omega-3 sources
  - Cold water marine fish oil (EPA), flaxseed or chia seed (ALA) – supplements or diets
  - Compete with AA for cyclooxygenases and lipoxygenases and produce less inflammatory prostaglandins and leukotrienes
- Omega-3 sources
  - Dose and treatment duration:
    - 66 mg/kg/day – 1 capsule containing 180 mg of EPA and 120 mg of DHA per 10 lbs
    - Treat for 12 weeks before evaluating response
Essential Fatty Acids

- Omega-6 sources
  - Evening primrose, borage and black currant oils
  - Better used for skin barrier restoration
  - Dose and treatment duration
    - 100-280 mg/kg/day
    - Treat for 12 weeks before evaluating response
Treatment

Atopic Dermatitis

Combine the *antihistamine* with the *essential fatty acid* to improve effect!
To date, there is no scientific evidence in favor or against the use of antihistamines or essential fatty acids to improve the pruritus and skin lesions of dogs with atopic dermatitis.

What about cats?
Allergen-Specific Immunotherapy

It is the only treatment that specifically modulates atopic dermatitis

Success rate is 60%-70%

It may take 1 year to work

Fairly safe
Most cases will need more than one treatment modality to satisfactorily control the disease.

Tailor the treatment to the patient and owner!
Treatment
Food Allergy

Especial diet determined after the food trial or sequential provocation test

±

Anti-pruritic and/or immunomodulatory drugs
Tailored to the Pruritic Cause

Treatment

Hypersensitivity
- Non flea-induced
- Flea-induced
- Mosquito bite

Parasitic or Infectious
- Surface demodicosis
- Cheyletiellosis
- Otoacariosis
- Notoedric mange
- Dermatophytosis

Neoplastic or Paraneoplastic
- CTCL
- TAED
Flea Bite Allergy

Parasiticidals

Imidacloprid
Fipronil
Lufenuron
Metaflumizone
Nitenpyram
Spinoteram
Indoxacarb

Avoid Permethrin!
Flea Bite Allergy

Treatment

1. Treat all animals in the household
2. Treat the environment
3. Glucocorticoids can be used initially to relieve pruritus
Flea Bite Allergy

All pruritic cats should be treated for fleas, mainly in areas where fleas are endemic!
Tailored to the Pruritic Cause

- Hypersensitivity
  - Non flea-induced
  - Flea-induced
  - Mosquito bite

- Parasitic or Infectious
  - Surface demodicosis
  - Cheyletiellosis
  - Otoacariosis
  - Notoedric mange
  - Dermatophytosis

- Neoplastic or Paraneoplastic
  - CTCL
  - TAED
Mosquito Bite Allergy

Avoidance

± Repellents

- Oil of catnip plant
- Extract from the seeds of *Vitex agnus-castus* (Mediterranean plant)

Avoid Permethrin!
Mosquito Bite Allergy

Treatment

Oral short-acting glucocorticoids or injectable formulation can be used initially to control pruritus
Tailored to the Pruritic Cause

Hypersensitivity
- Non flea-induced
- Flea-induced
- Mosquito bite

Parasitic or Infectious
- Herpes dermatitis
- Surface demodicosis
- Cheyletiellosis
- Otoacariosis
- Notoedric mange
- Dermatophytosis

Neoplastic or Paraneoplastic
- CTCL
- TAED
Herpes Dermatitis

- Lisine (without propylene glycol)
  - 250 mg PO q 24h
- Famciclovir
  - 45-90 mg/kg BID or TID
- Interferon (IFN) alfa
  - 1 MU/m² SC 3 times weekly or 0.01-1 MU/kg SC once daily for up to 2 weeks
- Feline recombinant IFN-omega
  - 1.5 MU/kg perilesionally and SC
- Imiquimod – 2 to 3 times weekly
Tailored to the Pruritic Cause

Treatment

Hypersensitivity
- Non flea-induced
- Flea-induced
- Mosquito bite

Parasitic or Infectious
- Herpes dermatitis
- Surface demodicosis
- Cheyletiellosis
- Otoacariosis
- Notoedric mange
- Dermatophytosis

Neoplastic or Paraneoplastic
- CTCL
- TAED
The response to the various spot-on products used to treat other manges may be poor in cats with surface demodicosis.
Surface Demodicosis

- 2-3% lime sulfur dips
  - Weekly dips for 6-8 treatments
  - When mites are not found
    » Isolate the suspected cat and start treatment
    » If no improvement after the third dip ➔ reconsider your diagnosis
    » If improvement ➔ finish the trial and treat all in-contact cats
Surface Demodicosis

- Amitraz dips -125-250 ppm
  - Weekly dips for at least 8 treatments
  - E-collar to prevent dip ingestion and removal until dry

Because of potential side effects other safer alternatives should be tried
Surface Demodicosis

- Moxidectin + Imidacloprid spot-on
  - Weekly for at least 8 or up to 12 treatments

Results have been promising!
Surface Demodicosis

- **Ivermectin**
  - 0.2 mg/kg q 24 – 48h PO

Potential for neurotoxicity and Heinz body anemia due to propylene glycol
Surface Demodicosis

Independent of the product chosen, **treat all in-contact cats** if mites are found on skin scrapings or fecal flotation or significant improvement is noted during a parasiticidal trial.
Other Parasitic Disorders

Treatment

- Imidacloprid + moxidectin
- Fipronil
- Ivermectin
- Doramectin
- Selamectin
- 2% - 3% lime sulfur

Treat all in-contact cats!

Avoid Permethrin!
Tailored to the Pruritic Cause

Treatment

Hypersensitivity
- Non flea-induced
- Flea-induced
- Mosquito bite

Parasitic or Infectious
- Herpes dermatitis
- Surface demodicosis
- Cheyletiellosis
- Otoacariosis
- Notoedric mange
- Dermatophytosis

Neoplastic or Paraneoplastic
- CTCL
- TAED
Dermatophytosis

Topical and/or systemic therapy

Environmental Treatment
Dermatophytosis

When to use systemic therapy?

- Multiple lesions
- Longhaired cats
- Multi-cat household
- No response to 2-3 weeks of topical therapy
Dermatophytosis

Systemic therapy

- Itraconazole: 10 mg/kg q 24h PO
- Terbinafine: 30 mg/kg q 24h PO
- Griseofulvin: 50-100 mg/kg q 24h or divided
- Ketoconazole: 10 mg/kg q 24h PO

Avoid griseofulvin and ketoconazole because of potential side effects
Dermatophytosis

- Topical therapy
  - Lime sulfur dip: 1x-2x weekly
  - Antifungal ointments and creams: 2x daily to include a 6 cm area of shaved normal skin around lesion

Topical therapy should always be used concurrently with systemic therapy.
Dermatophytosis

Treat all cases until 2 consecutive negative fungal cultures at 2-week interval are obtained!
Dermatophytosis

Environmental treatment is crucial as spores remain viable in the environment for 18 months!

Clorox® Clean UP®
Formula 409®
Lysol®
Accel® TB
Sodium hypochlorite 5%(1:10)
Tailored to the Pruritic Cause

Hypersensitivity
- Non flea-induced
- Flea-induced
- Mosquito bite

Parasitic or Infectious
- Herpes dermatitis
- Surface demodicosis
- Cheyletiellosis
- Otoacariosis
- Notoedric mange
- Dermatophytosis

Neoplastic or Paraneoplastic
- CTCL
- TAED
Cutaneous T Cell Lymphoma

Treatment

Lomustine
Prednisolone
Refer to an oncologist
Thymoma-associated exfoliative dermatitis

Treatment

Remove tumor
Refer to an oncologist
### Summary

**Confirm that the cat is pruritic!**

Clinical presentations are non-specific

<table>
<thead>
<tr>
<th>5 clinical presentations account for most cases:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miliary dermatitis</td>
</tr>
<tr>
<td>Non-inflammatory symmetrical alopecia</td>
</tr>
<tr>
<td>Head and neck pruritus</td>
</tr>
<tr>
<td>Eosinophilic granuloma complex</td>
</tr>
<tr>
<td>Scaling</td>
</tr>
</tbody>
</table>
Treatment should be tailored to the pruritic cause, the patient and the owner.

Summary

Diagnosis should be based on a thorough history, clinical signs and various diagnostic tests including treatment trials.
Questions?
Case
“Claude”
“Claude”

- **Signalment:**
  - 3 years old, female spayed, DSH

- **Primary concern:**
  - Hair loss that has progressed during the past few weeks
  - Grooming constantly and sometimes nibbles at skin

- **History:**
  - The problem started after she was adopted 3 months prior
  - Pruritus level: 6/10
  - No previous treatment
  - Another cat in the house: not affected
  - Exclusively indoors
“Claude”
Clinical Signs
Differential Diagnoses

- Surface demodicosis
- Food allergy
- Atopic dermatitis
- Dermatophytosis
- Psychogenic
Diagnostic Tests...

- Skin scrapings± fecal exam
- Which areas we should scrape to increase our chances to find mites?
  - Affected and non affected areas
Resultado dos testes...

- Results:
  - Positive
Lime sulfur dip:

- 1 dip per week for 8 weeks

Results = no response
And now...

- Food elimination trial
  - Hydrolyzed diet strictly for 8 weeks

Result = no response
And now...

- Intradermal and/or serum allergy test to try allergen specific immunotherapy (ASIT)

Result = house dust mite, house dust, tree pollen, Aspergillus and Cladosporium
Treatment Plan

- Start ASIT
  - 60% success rate
  - It can take 1 year before any response
  - Maintenance: 1 injection every 3 weeks

- Symptomatic therapy
  - Prednisolone
    - 2.0 mg/kg q 24h for 7 days → 1.0 mg/kg q 24h → 0.5 mg/kg q 24h → 0.5 mg/kg q 48h
  - Clorpheniramine: 2 mg q12h
  - Omega 3: 66 mg/kg/day of EPA and DHA
Recheck 6 weeks later...

- Significant improvement in itching
- Polyuria, polidipsia, polyphagia, slight weight loss
- Chemistry profile and urinalysis
  - Hyperglycemia → 300 mg/dl
  - Glycosuria
- Plan
  - Discontinue the prednisolone
  - Start cyclosporine at 7 mg/kg q 24h
  - Continue omega-3 and chlorpheniramine
Recheck 10 weeks later...
Recheck 10 weeks later...

- Repeated chemistry profile and urinalysis:
  - Unremarkable
Maintenance Plan...

- In about 6-8 weeks try reducing the daily cyclosporine dose or the frequency to every other day
  - Important to evaluate the efficacy of ASIT
  - Trying the lowest possible dose of immunomodulatory drugs reduces the changes of severe side effects
Conclusion

- In this case the presence of *Demodex gatoi* on skin scrapings was not relevant to the clinical signs.
  - Claude pruritus was due to environmental allergy.

- Should we do a prednisolone trial even when mites are found on skin scrapings?
  - I recommend treating for demodicosis first if mites are present on skin scrapings or fecal flotation.
Questions?