Feline dermatoses - case based review of both common and rare skin diseases in the cat

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**CASE SERIES 1**

- This is a common cause of skin disease in cats especially in warm, humid climates
- Young cats and immunocompromised or severely stressed adult cats are at increased risk There is no sex predilection
- The most common presentation is follicular papules which quickly become crusted leading to the typical presentation of miliary dermatitis
- There may be patchy alopecia and miliary dermatitis along the caudal dorsum
- Excessive grooming leads to fractured hairs leading to a rough disheveled hair coat. It is variable pruritic
- Long haired and persian cats frequently show signs of alopecia without other clinical signs
- Deeper, focal infections may produce small nodules with draining tracts.

**Diagnostic tests:**

- Tape cytology (DifQuick stain): may show hyphae (rarely)
- Trichogram may show ectothrix spores
- Wood’s Lamp: Positive reaction is apple-green fluorescence along the hair shaft + root
  - only about 50% *M. canis* strains fluoresce
    - False positives and false negatives occur
    - **Positive Wood's lamp examination must be confirmed through culture**
- Biopsy: histopathology can be used to identify the presence of arthrospores and/or hyphae infecting hair follicles. A dermatophyte culture should still be done to determine the species
- DTM: dermatophytes use protein first, creating alkaline metabolites and RED color change CONCURRENTLY with colony growth. Formulated to suppress growth of saprophytes and contaminant bacteria
  - Phenol red is pH indicator
  - Possible reasons for growth on one side (but not the other)
could be poor inoculation on that side, inhibition by secondary growth or a finicky strain that does not like some component in that media type
- If you have two negative derm duets but strongly suspect dermatophytosis inoculate Rapid Sporulating Media
- 99.9% of the time the organism grows rapidly on both sides exhibiting characteristic color change and sporulation by 3-7 days. Occasionally may take 30 days
- The derm duets do not recommend analyzing past 7 days because by then saprophytic growth will start to produce the color change in the media. We grow ours for 30 since we do not rely solely on the media changing color to identify dermatophytes
- Cytology using lactohenol blue stain should be used to identify the Genus and species of dermatophyte

Transmission
- The cat is the vector for *M. canis*
- Transmission is by direct contact but can occur via indirect contact with infected hairs or scale in the environment
- Mechanical asymptomatic carriage is common and estimated to occur in 15-36% of animals.
- Dermatophytes cannot invade intact skin. Infection of hair most common in animals. Invasion of anagen hairs keratinolytic enzymes allow invasion of cuticle. Infection resolves in telogen phase *M. gypseum* and *T. mentagrophytes* more inflammatory than *M. canis* may mimic autoimmune disease

Treatment
- Environmental decontamination in all cases
- Topical therapy is indicated in all cases
- Systemic therapy is indicated in:
  - Cats
  - Generalized infections
  - Mycetomas
  - Trichophyton infections

Environmental decontamination
- Household bleach (5.25% sodium hypochlorite), diluted 1:10 (bleach:water)
- Air filters changed
- Disposal of all contaminated fabrics

Topical therapy
• Lime sulfur dips (4-8 oz/gallon) (8 oz in a cup), weekly
• Miconazole rinse
• Chlorhexidene products NOT effective
• Antifungal creams/lotions do NOT penetrate infected hairs

**Systemic therapy**

• Griseofulvin: dosage depends upon formulation used absorption increased with fatty meal. Side effects: tastes bad, vomiting, diarrhea, anorexia, bone marrow suppression, neurologic signs, pruritus, , EM/TEN, teratogenic. Side effects may be more common in Persians, Siamese, Himalayans, and Abyssinians. Don’t use in kittens less than 12 weeks. Contraindicated in FIV-infected cats. Most cats clear within 1-3 months
  - Micro (Fulvicin-U/F, Schering): 50 mg/ kg/day
  - **Ultramicro Gris-PEG (Herbert): 2.5-15 mg/ kg q 12hrs**
• Itraconazole: 10 mg/kg/day. Pulse therapy may be done - 5– 10 mg kg−1 orally every 24 h for 28 days and then on an alternate week regimen (1 week off, 1 week on). Triazole antifungal with superior efficacy against dermatophytes, Better tolerated by dogs and cats, Side effects are relatively uncommon but include: hepatotoxicity, vasculitis in dogs (at higher 10 mg/kg dose). Mycological cure after (2 months) 56 days.
• Terbinafine: 30-40 mg/kg/day. Possible adverse effects: vomiting, diarrhea, hepatopathy. Time to mycological cure = (2-4 months) 63-120 days
• Fluconazole: variable efficacy, generally not recommended

**Duration of therapy**

• Until clinical resolution PLUS….
• 2-3 consecutive negative cultures, weekly intervals
• Wood’s lamp is ineffective at judging success of Rx

**Medications NOT to use in the cat:**

1. Ketoconazole: 25% of cats develop adverse side effects: v/d, anorexia, fever, depression, cholangiohepatitis, neurological signs, death
2. Vaccine: Fel-O-Vax: killed *m.canis* → may achieve resolution of clinical signs but they continue to carry the fungus. Cats will be clinically normal prior to mycologic cure
3. Program (Lufenuron): not effective

**CASE SERIES 2**

There are several forms of this syndrome in cats.

• The first presents as an inflammatory ulcer usually located on the upper lip. It may be unilateral or bilateral. These have been reported to have the potential to progresses to SCC, although this is considered rare. Over time the lesions become progressively more eroded.
Often in association with the first manifestation are firm, erythematous, yellow, ulcerated, caseous lesions that occur in the pharynx and oral cavity. These are often secondarily infected.

- The second presentation is as a linear, raised plaque on caudal ventral aspect of the tail or hind legs. These are variably pruritic.
- The third manifestation of this syndrome is well circumscribed, circular to oval, intensely erythematous, eroded or ulcerated alopeciatic, intensely pruritic plaques most commonly on the abdomen and medial thighs. They may be solitary although usually multifocal and may coalesce leading to polycyclic shapes. Regional lymphadenopathy is common. The lesions can be quite extensive, ulcerated and occur elsewhere on the body.
- The final presentations are less common: “fat chin” and “swollen paw”

**Diagnosis:**

- FNA cytology shows…. Eos and neuts, occ some mast cells
- biopsy for histopathology. The best biopsy site is one that has minimal erosion/ulceration.
- DTM
- Histopathology: Spongiotic dermatitis with severe eosinophilic infiltrate

**ANSWER:** eosinophilic granuloma complex

- Several clinical manifestations
  - Indolent Ulcer
  - Collagenolytic Granuloma
  - Eosinophilic Plaque
  - *Fat chin & fat paw*
  - Different reaction patterns to a common etiology

**Differential diagnoses:** granulomatous disease, neoplasia, dermatophytosis

**Treatment**

- Always address the underlying cause- the most common being allergies.
- EFAs (Derm Caps®, DVM Pharm): 0.5 mL/ 5 kg
  - May be effective for granulomas, but *not plaques*
- Antibiotics (Clavamox®, Pfizer)
  - May be effective for eosinophilic plaques, *not ulcer*
  - A recent double blinded, placebo controlled study of 17 cats with lip ulcers (9) and plaques (8) where they was done. There was a significant decrease in
plaque size after 21 days of 14 mg/kg BID as compared to placebo. However, there was no effect on lip ulcers. “Response of feline eosinophilic cutaneous plaques and eosinophilic lip ulcers to Clavamox)” Brett Wildermuth. ACVD Conference 2009

- **Glucocorticoids**
  - Topical: 0.01% fluocinolone Acetonide/ DMSO (Synotic®, Fort Dodge)
  - Systemic: prednisolone, 1-2 mg/kg/day
  - Methylprednisolone acetate IM, 4 mg/kg, given once every 2 weeks for three injections. *Only if:* the disease has been confirmed by biopsy; no evidence of, or no ability to investigate, an underlying cause (especially feline herpesvirus dermatitis); and this protocol is only used twice a year at most (not for long term therapy).

- **Cyclosporine (Atopica®, Pfizer)** 5-10 mg/kg/day: has been shown to be effective in cats with all forms although some cats with lip ulcer do not respond.

- **Chlorambucil (Leukeran®, GlaxoWellcome)** 0.2 mg/kg q 24-48 hrs. Chlormabucil is an alkylating agent that alters DNA synthesis. May be given in conjunction with corticosteroids. Available as a 2 mg tablet, thus, most cats receive half a tablet per day. Toxicity is uncommon but reversible bone marrow suppression has been noted, and cats on chlorambucil should be monitored with complete blood counts (CBCs) and platelet counts every 2-4 weeks. Vomiting, diarrhea and anorexia have also been reported but this minimized by giving it q 48 hrs.

**CASE SERIES 3**

- This next disease may occur seasonally in the spring/summer although in the SouthEast it may be year round. It tends to occur in young to middle age cats with no breed or sex predilection. Often these cats live outdoors. It is usually non-pruritic and clinical signs usually occur on the face.

- This is really a form of eosinophilic granuloma

- Dermatological abnormalities are erythematous, alopeciac, ulcerated papules and nodules on the nose, pinnae and paws

**Diagnosis:**

- Clinical history/ exam
- Biopsy for histopathology
**Answer:** Feline Mosquito Bite Hypersensitivity

**Treatment**

- Indoors
- Glucocorticoids
  - Synotic® (Fort Dodge)
  - Prednisolone 1-2 mg/kg/day
- Antimicrobials
- Insect repellent
  - Pet-Guard gel™ (Virbac) contains 0.1% Pyrethrin, apply q 3 days

**Important differential diagnoses to consider**

- Feline Herpes virus
- Squamous cell carcinoma
- Various fungal:
  - Cryptococcus
  - Sporotrichosis
  - Phaeohyphomycosis
  - Dermatophyte mycetoma
  - Pythium

**CASE SERIES 4**

- The most common presenting complaint for this disease is excessive grooming and non-inflammatory alopecia. There is no age or breed predilection and the reported age range is 4-16 yrs. There is a poor response to GC therapy.
- Variable pruritus
- Alopecia, sclea, excoriations, crusted papules
- Head, neck, lateral thorax, ventral and lateral abdomen, medial aspects of all 4 limbs.
- Broken stubby hairs are common along the proximal rear legs, flanks, ventral abdomen and trunk
- Some cases present as symmetrical alopecia with or without scaling.

**Diagnostic tests**

- Superficial skin scrape:
  - Short, broad, blunt abdomen
  - Related to D. criceti (demodex of hampsters)
**Answer:** Demodex gatoi

**Treatment**

- Ivermectin 300 mcg/kg PO or SQ, weekly, 6 treatments
- 2% Lime Sulfur dips (LymDyp™, DVM), weekly, 6 dips
- Treat all animals in contact

**CASE SERIES 5**

- Classic presentation: extremely puffy paw pads with very fine white scale (striae)
- Usually affects all four paws, with the pelvic limb paws more severely affected.
- Extreme cases may have complete extrusion of the paw pads

**Differential diagnoses to consider**

- Allergic contact reaction
- Other differentials usually affect 1 paw:
  - Infectious or sterile pyo/granulomas
  - Mosquito bite hypersensitivity
  - Eosinophilic granuloma
  - Neoplasia

**Diagnosis:**

- Biopsy for histopathology: diffuse plasmacytic dermatitis

**Answer:** Plasma cell pododermatitis

- “Puffy pawpad syndrome”
- Idiopathic
- Systemically healthy
- Hyperglobulinemia- polyclonal
- Europe- 50% FIV positive, not in the USA
Treatment

- Spontaneous remission may occur
- Doxycycline 5 mg/kg PO BID
- If fails to respond:
  - Prednisolone 2 mg/kg/day
  - Melphalan (Alkeran®, GlaxoSmithKline ) 0.1 mg/kg PO q 48 hrs
- Surgical excision of extruded paw pad

CASE SERIES 6

- These lesions appear as multiple, often numerous punctate nodules, usually < 2 mm along the pinnae and external ear canal.
- Dark blue, brown or black.
- The average age of onset is btwn 8-9 years although cats as young as 1 yrs may be affected.
- Abyssinains, Persians may be predisposed and males are slightly overrepresented.
- Often they arise in cats with a history of historical chronic otitis

Diagnosis:

- FNA cytology: red brown inspissated material and on cytology you may see small numbers of pigment containing macrophages and neutrophils.
- Biopsy for histopathology, distinguish from carcinoma

Answer: Feline Ceruminous Cystomatosis

- Non-neoplastic
- May cause obstructive otitis

Treatment

- Total ear canal ablation with bulla osteotomy
- May laser to open ear canal, usually return

CASE SERIES 7:

- Middle aged cats, no breed or sex predilection.
• This is a pustular disease, the pustules are very transient and quickly replaced by erosions and yellow honey colored crusts.
• Areas of the body affected: pinnae, nailbeds, peri-nipple and face

**Diagnostic tests:**
• Cytology: acantholytic cells, neutrophils
• Histopathology: subcorneal- intraepidermal subcorneal neutrophilic and acantholytic pustules

**Answer:** Pemphigus foliaceous
• Antigen target unknown in cat

**Treatment:**
• Topical steroids
• Antimicrobials
• Glucocorticoids +
  o Chlorambucil 0.2 mg/kg q 48 hrs
  o Cyclosporine 5 mg/kg q 24 hrs

*Recall that cats don’t tolerate azathioprine because of severe bone marrow suppression.*

**CASE SERIES 8**
• There is no age, breed or sex predilection.
• Clinical signs consist of focal alopecia containing a solitary, well demarcated ulcer with adherent, necrotic debris.
• The surrounding skin may be swollen and erythematous.
• The lesions are almost exclusively between the scapulae or at the base of the dorsal neck.
• Some cats exhibit severe pain and pruritus- some cats maniacally self traumatize. Examination may induce pronounced scratching. Regional lymphadenopathy may be present but these cats are systemically healthy.
• The dorsal neck has an unusually dense aggregate of sensory nerves so it is tempting to speculate that this disease arises due to overstimulation of these nerves through repeated injections.
• The ulcers may persist for months
• A heavily crusted, non healing ulcer that is surrounded by a border of thickened skin forms on the dorsal neck region between the shoulder blades. It may be painful and extremely pruritic. Affected cat may cause severe tissue damage through self-mutilation.
• With time the border becomes indurated.

**Diagnosis**

• Skin Scrapes- superficial and deep
• Cytology-looking for infectious organisms.
• Dermatohistopathology-to rule out neoplasia and vaccine reactions. Subepidermal laminar fibrosis is characteristic, epidermal ulceration and necrosis.
• Bacterial and fungal cultures to rule out infectious etiologies.
• Allergy work-up-food trial, allergy testing.
• Therapeutic trials with lime sulfur dips and Revolution to rule out ectoparasites.
• Wedge biopsies along the ulcerated margin of the lesion is the best approach to biopsy. SQ tissue should be included.

**Answer:** Feline Idiopathic Ulcerative Dermatosis

• Cause is not known
• A reaction to topical (e.g., flea treatment) or systemic medication (including vaccines) is considered possible due to the common occurrence of lesions at the base of the neck. For cats that have received no injections or topical spot-ons, other putative causes include neuropathies and behavioural abnormalities

**Differentials:** infectious, allergy, neoplasia

**Treatment:**

• Therapy is aimed at surgical removal where possible. However, resection needs to be sufficiently deep and include all margins of the lesion. If non-resectable, symptomatic therapy is recommended. Obviously, the site should not be used again for medication purposes.
• Bandages, soft paws and e-collars are needed to prevent the cat from mutilating the affected area.
• Behavior modifying drugs may be helpful.
  
  o Amitriptyline 5-10 mg/cat PO q 12-24 hours.
  o Clomipramine at 1 mg/kg q 24h → may be the best choice
  o Phenobarbital 4-8 mg/cat PO q 12 hours
  o Diazepam 1-2 mg/cat PO q 12-24 hours.
  o Naloxone 1 mg/kg SC q several weeks as needed.
• This a rare to uncommon disease.
• There is no breed or sex predilection although most cats are middle-aged or older
• These cats are usually middle age to older and some have a history of recent glucocorticoid administration or signs of systemic illness such as PU/PD/ PP
• The skin is thin, fragile, and tears or bruises easily
• Additional skin changes include: symmetrical alopecia and hyperpigmentation of the trunk, flanks, and/or the ventral abdomen
• Concurrent diabetes mellitus is common
• These cats may show signs of polyuria and polydipsia, dull mentation, anorexia or polyphagia, weight loss, muscle wasting, and a pot-belly appearance.

**Diagnosis**

• Biopsy- non-ulcerated skin should be chosen
• Hemogram, serum biochemistry panel, urinalysis- may show changes associated with concurrent diabetes mellitus, but otherwise are nondiagnostic.
• Abdominal u/s
• Adrenal function tests:
  o ACTH stimulation test- an exaggerated post-ACTH cortisol level is suggestive of endogenous hyperadrenocortism, whereas a poor response to ACTH stimulation is suggestive of iatrogenic disease.

**Answer:** Feline Acquired Skin Fragility Syndrome

• Although the cause is unknown, the condition has been associated with hepatic disease, diabetes mellitus, Cushing's disease and exogenously administered progestogens, phenytoin (antiepileptic).
• Curling of ear tips is often associated with iatrogenic hyperadrenocorticism
• Some cases are idiopathic

**Treatment**

• If the cat needs to be on glucocorticoids for immune mediated disease it should be weaned onto an alternative immuosuppressive agent such as cyclosporine or chlorambucil and stop the glucocorticoid therapy
• Supportive care & wound management
• Treat underlying systemic disease

**CASE SERIES 10**
• There is no breed or sex predilection for this disease in the cat
• Breeds that have been reported with this disease: DSH, DLH and Himalayans
• Clinical signs are usual evident at a very young age/ shortly after birth
• The hallmark feature of this disease is the profound skin hyperextensibility with little to no elasticity.
• And they have a characteristicly thin scar called a “cigarette paper scar”
• Some patients have signs in other organ systems with clinical signs of joint luxuation. Ocular signs may also occur including microcornea and lens luxation.

**Diagnosis**

• The disease is diagnosed based on clinical signs and ancillary tests. It is very important to include a calculation of skin extensibility index in clinical examination.
• Biopsy for histopathology: reduced dermal connective tissue consisting of shortened and fragmented collagen fibers. Normal fibers were intermingled with altered fibers
• Electron microscopy: ultrastructural changes in collagen fibers included disorientation of fibrils within the same bundle, marked spacing differences, and variation in the diameter of transverse sections. The fibrils maintained the transverse striations characteristic of normal collagen.
• The length of a skin fold was measured on the back, while pulling it away from the backbone until pain was elicited. The length of an animal was measured from the tail base to the occiput
• The average values of this parameter are over 14.5% in dogs, over 19% in cats, and 19.2% in Rabbits

**Answer:** Cutaneous asthenia syndrome

• In cats, it has been shown this disease is caused by defective procollagen peptidase which catalyzes post translational modification of collagen and an increase in collagenase activity.

**Treatment**

• Antimicrobials
• Bandaging
• Surgical closure of wounds as they occur

**CASE SERIES 11**

• This next disease is only seen in cats less than 1 yr of age
• The lesions occur exclusively in the ears of cats and consist of
erythematous, well demarcated plaques with adherent, thick, keratinous debris on the medial aspect of the pinnae, the entrance of the ear canal and in some cats the preauricular region of the face

- Lesions develop rapidly and coalesce sometimes creating annular or serpiginous borders. Adherent crusts become trapped in the hair coat
- As the lesions progress they create erosions and ulceration
- The cats do not appear painful or pruritic until the lesions ulcerate but even then the discomfort is relatively mild.

**Diagnosis**

- Clinical history and appearance is classic
- Biopsy to confirm

**Answer:** Proliferative Necrotizing Otitis in Kittens

- The precise cause is unknown; viral tests (herpesvirus and papilloma virus) have so far proved negative. The condition is easily differentiated from other forms of otitis externa by the characteristic clinical signs and marked hyperplastic/proliferative response affecting the surface lining. The diagnosis can be confirmed on biopsy.

**Treatment**

- Treatment is generally confined to symptomatic therapy (topical antimicrobials for secondary infections) as the condition is usually non-painful and spontaneously regresses within several months

**CASE SERIES 12**

- This next disease occurs in Persian and occasionally in Himalayan cats
- The median age of onset is 2.5 yrs although the range is 10 months – 6 yrs
- Black, waxy, tightly adherent debris (follicular casts) accumulates symmetrically around the eyes, mouth, and/or on the chin. Initially, lesions are not pruritic, but as they progress and become inflamed, moderate to severe pruritus develops
- Exudative and erythematous facial folds, mucoid ocular discharge, erythema of the preauricular skin, and/or otitis externa with black, waxy debris in the ear canals may also be present. Secondary bacterial and *Malassezia* skin infection are common.

**Differentials to consider**

- Primary seborrhea (usually affects areas other then the face)
- Ophthalmic disease causing epiphora and moist dermatitis
- Dermatophytosis
- Dirty Face Syndrome
**Diagnosis**

- Usually based on signalment, history, clinical findings, and ruling out other differentials.
- Cytology to identify any infectious organisms.
- Histopathology, take biopsy from muzzle – be sure to leave the adherent debris attached.

**Treatment**

- No specific therapy has been shown to be effective.
- Treat any secondary bacterial or *Malassezia* skin infections with appropriate systemic medications for at least 3-4 weeks. However, response to antimicrobial therapies is often partial at best.
- Treatments with steroids, doxycycline, hyposensitization, and food trials may help reduce the clinical symptoms.

**THE END!**

**References**