Differential Diagnosis of Canine Alopecia

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• LOCALIZED ALOPECIA-
  – Injection reactions
  – Localized demodicosis
  – Infectious-bacterial, fungal
  – Seasonal flank alopecia
  – Familial dermatomyositis

Owners worry!

• Even though there are few, if any, serious diseases where focal alopecia is the presenting sign, owners worry when a pet loses fur, even if it’s only a small area!

Injection reactions

• Most common in Poodles, Maltese, Schnauzers, Lhasa apso, Greyhound, Shih Tzu breeds.
• Can occur 1-6 months post injection-some up to 3 years!
• Shoulder/hip area affected.

• Rarely results in systemic vasculitis.
• Clinically appears as an area of outwardly expanding alopecia with “tissue paper” thin skin. New hair growth may be a different color.
Injection reactions: diagnosis

- Diagnosis made by area of body affected, breed, lesion occurring 1-6 months post injection. Many times the area initially may go completely unnoticed.
- Biopsy indicates lymphoplasmacytic infiltrate surrounding hair follicles with localized vasculitis/fibrosis, adnexal atrophy.
Injection reactions: treatment

- Benign neglect
- Topical steroids—cautiously! (they thin the skin even more!)
- Trental (pentoxifylline) 400mg-10mg/kg tid
- DMSO gel
- Surgery to remove “lesion” which removes vaccination adjuvant which is felt to cause the problem in some patients.

Localization Demodex
Localized Demodex

- Always suspect in ANY hairloss area of the face or extremities of a young dog!
- Most often explained as “the pups were just playing together”!
- Scrape, pluck, tape to find-squeeze skin first.

Localized Demodex: Treatment

- Benign neglect
- Goodwinol-a known irritant!
- Benzoyl peroxides, mupirocin ointment
- Mitaban in mineral oil, topical lime sulfur
- No steroids!
- Keep checking patient to be sure it doesn’t become generalized!
Dermatophytosis

- Alopecia usually accompanied by erythema, crusting.
- Lesions most often on face, extremities.
- Diagnosis via trichogram, Wood’s light, fungal culture, skin biopsy/PAS stain.
- Treatment includes oral antifungals, topicals, care to prevent spreading.
Bacterial pyoderma

• Focal alopecia such as chin folliculitis.
• Moth-eaten areas especially on trunk.
• Pruritus variable.
• Diagnosis via skin scrapes, cytology, skin biopsy.

Treatment includes:
• Antibacterial baths
• Antibiotics until 1 week past total clearing
• Topical antibacterials
• No steroids
Seasonal flank alopecia (light responsive alopecia)

Seasonal flank alopecia

- Most often seen in the Midwest where little sunlight exists in winter!
- Patients usually present end of winter or early spring.
- History of dog being inside all day during sunlight hours.
- Boxers, English Bulldogs, Labs, Schnauzers, Sharpei, Airedale, Rhodesian Ridgebacks

Seasonal flank alopecia-rule outs and treatment

- Rule out hypothyroidism and Cushing’s disease—natural vs. iatrogenic—some dogs are very steroid sensitive!!
- Skin biopsy (“witch’s feet”), area of body affected, time of year affected
- Treatments include: more sunlight!
- Melatonin 3-24mg sid starting mid-Sept.
Light responsive alopecia

Canine familial dermatomyositis

- Shetland sheepdog, Collie, Welsh corgi
- Lesions evident by 6 months of age.
- Face, ears, carpi, tarsi, tip of tail.
- Skin +/- muscle weakness.
- Diagnosis via skin biopsy.
- Hereditary.
- Disease may wax and wane.
- Older dogs tend to have worse prognosis.
- Pups “playing”

Canine familial dermatomyositis
**Dermatomyositis**

- Varies with the extent of the disease.
- Topical steroid ointments eg. Fluocinonide .05%, Triamcinolone .1%
- Trental 25mg/kg tid
- Vitamin E 20iu/kg
- Sunlight avoidance

- Prednisone 1mg/lb sid-qod with food.
- Imuran 1mg/lb sid-qod.
- If muscle involvement, feed upright to prevent aspiration pneumonia.

**Generalized Alopecia: Differentials**

- Bacterial pyoderma
- Generalized demodicosis
- Endocrine disease
- Sebaceous adenitis

- Miscellaneous:
  - Pattern baldness
  - Color dilution alopecia
  - Hypotrichosis
  - Sex hormone dermatosis
  - Old dog erythema multiforme

**Dermatomyositis**
Bacterial pyoderma/folliculitis

- Pustules, epidermal collarettes, moth-eaten appearance.
- Pruritus variable.
- Primary vs. secondary to underlying disease.

DIAGNOSIS:
- Cytology
- Skin scrapings
- Culture/sensitivity
- Skin biopsy

Bacterial pyoderma: Treatment

- Appropriate antibiotic therapy until 1 week past clearing of lesions.
- Antibacterial bathing.
- No steroids.
- If recurrent, check for underlying disease ie. allergy, endocrine disease, ectoparasites.
Generalized demodicosis - Juvenile onset

- Accompanied by bacterial folliculitis.
- Culture/sensitivity often needed as mixed infection present.
- Predisposed breeds, hereditary predisposition.

DIAGNOSIS:

- Skin scrapings.
- Skin biopsies.

Generalized demodicosis - Juvenile-onset

Generalized demodicosis: Adult onset

- Check for underlying internal medicine disease i.e. endocrine disease, neoplasia or steroid use.
- Has the patient been on steroids?

DIAGNOSIS:

- Skin scrapings.
- Skin biopsies.
Generalized demodicosis—Adult-onset

Demodicosis: Treatment

- Antibiotics, Vit E 20iu/kg sid
- No steroids
- Benzoyl Peroxide shampoos
- MITABAN dips (weekly vs. every other week)
- MILBEMYCIN 0.5mg/kg bid
- IVERMECTIN:
  - Breed contraindications
  - 200-800ug/kg/day po after negative heartworm test
  - Duration of therapy
- Other therapies

Canine Demodicosis

Other therapies

- Taktic: lcc/100cc water, dip 1/2 body sid.
- Preventic Collar: 9% amitraz
- Vitamin E 20iu/kg orally sid
- Immunostimulants—not helpful
- Lufenuron—not helpful
- Mitaban lcc/29cc mineral oil—make fresh
- Revolution—not helpful
- Lime sulfur dips—don’t rule this out!!
Canine Demodicosis—Other Therapies

• Advantage Multi spot-on at 0.1mg/kg in 63 dogs-30 treated q 4 wks for 2-4 applications and 33 treated w/ milbemycin alone sid for 4-8 wks showed similar improvement. Approved in Europe q wk.
• Early results show that success rate highest in dogs with low mite counts and less severe disease.

Canine Demodicosis—Moxidectin

• Moxidectin-related to milbemycin. 200ug/kg/wk or q o wk for 1-4 doses successful in 33-100% of dogs.
• Dr. Carlotti-400ug/kg orally using the injectable form daily. 96% cured in 2-6 mos.

Canine Demodicosis-Doramectin

• Doramectin 0.6mg/kg/wk—effective in 10/23 patients when used for 5-23 wks. Longer T1/2 than Ivermectin.
• Shibata K, 2005. 9 dogs with gen. demodicosis rx’d w/ 0.6mg/kg/wk improved within 10 wks.
**Sentinel for Demodicosis?**

- Novartis advises against it saying target organs for toxicity are liver, adrenals, thyroid, brain. High doses 30.8mg/kg - seizures.

**Fluralaner (Bravecto) for Demodicosis**

- Isoxazoline parasiticide-inhibits arthropod GABA & L-glutamate-gated Cl channels.
- After 12 weeks, when compared w/ moxidectin/imidacloprid-fewer mites found on Bravecto dogs after 1 dose.
- Bravecto dogs-no mites found day 56 and day 84 but moxi/imid dogs still harbored mites after 3 doses/28 day intervals.

**Fluralaner-continued**

- Dosing: minimum dose of 25mg/kg every 8 wks.
- Bravecto and Ivermectin together-no alteration of pharmacokinetics of either compound. No apparent risk of Ivermectin toxicity. Apparently the same with Bravecto and milbemycin.
Simparica, NexGard

- Used monthly for generalized demodicosis
- We’ll be discussing these further later on…

Hyperadrenocorticism (Cushing’s disease)

- Truncal alopecia, change in haircoat color, rattail.
- Recurrent pyoderma
- Thin skin, visible vessels, calcinosis cutis.
- Comedones, scaling.
- Predisposed breeds: Dachshunds, Boxers, Cocker spaniels, Schnauzers, Poodles, Boston terriers.
- Symptoms variable--not all are polyuric, polydipsic, or polyphagic!

Hyperadrenocorticism-Cushing’s disease
Hyperadrenocorticism-Cushing’s disease

Hyperadrenocorticism: Diagnosis
• Urinary cortisol/creatinine ratio.
• Low dose dexamethasone suppression test.
• ACTH Stimulation test.
• Plasma ACTH.
• High dose dexamethasone suppression test.
• Abdominal ultrasound.

Hyperadrenocorticism: Treatment
• Symptomatic ie.
  Antibiotics, antiyeast medications.
• Lysodren-loading dose followed by maintenance dose.
• Trilostane
• Nizoral
• Anipryl
• Miscellaneous:
  Bromocriptine
  Cyproheptadine
  Surgery
• Miscellaneous:
  Surgery
Hypothyroidism

- Lack of undercoat, rattail
- Diffuse scaling
- Weight gain, lethargy, tragic facies
- Recurrent pyoderma
- Seborrhea
- Hyperpigmentation

- Neurologic
- Respiratory
- Reproductive
- Cardiovascular
- Musculoskeletal
- Hematologic
- Ophthalmologic
- Gastrointestinal
Hypothyroidism: Diagnosis

- TT4 (total thyroid both protein bound and unbound)
- FT4 (free T4)**
- TSH-30% of hypothyroid dogs will have a normal TSH!
- Thyroglobulin autoantibody - may be earliest indicator of hereditary hypothyroidism.
- Other:
  - Mild anemia
  - Hypercholesterolemia
  - Elevated liver enzymes

Hypothyroidism: Diagnosis

- Endogenous or exogenous steroids can artificially lower TT4 levels making the dog appear hypothyroid on paper.
- Sulfonamides and NSAIDS can lower thyroid levels, optimum time to be off sulfas prior to thyroid testing: 6-8 weeks.

Hypothyroidism: Treatment

- L-thyroxine 0.1mg/10-12 lbs ideal body weight administered bid. I start at a lower dose in geriatrics.
- Maintain same brand of thyroid Rx. ThyroTabs currently only FDA approved L-thyroxine supplement.
- Recheck TT4 in 60 days, 4-6 hours post pill. Want TT4 to be at high end of normal.
Sebaceous Adenitis (SA)

- Inflammation with destruction of the sebaceous glands.
- Alopecia, tight, adherent scale starting on ear pinna, tops of feet. Progresses to head, trunk.
- 1 1/2-8 yrs of age.
- Hereditary in Std. Poodle, Akita, Golden retriever.
- Reported in >25 breeds.
- Waxes and wanes.
- Akitas tend to have systemic symptoms.

Sebaceous Adenitis
Sebaceous Adenitis: Diagnosis and Treatment

• DIAGNOSIS: Skin biopsies (usually dorsal cervical and lumbar areas).
• Biopsies to dermatopathologist.
• Often mistaken for hypothyroidism.

• TREATMENT:
  • Baby oil soaks preceded by Palmolive baths.
  • Cyclosporine 5mg/kg sid or lower
  • Antibiotics for secondary pyoderma.

Human topical hormone replacement alopecia

• Occurs when owner using topical hormone replacement and dog comes in contact with that area on the body.
• Owner was using bioidentical hormones on her arm and held the dog against her.

Alopecia-Pattern Baldness
Alopecia-Castration Responsive

And finally…cheer up! Losing your hair isn’t always that bad!!