Chinchillas

ALOPECIA

BASICS

DEFINITION
Alopecia is common in chinchillas and is characterized by complete or partial lack of hair in expected areas. It may be multifactorial and can be either a primary or secondary disorder. As many as 60 hairs grow from a single hair follicle in a healthy chinchilla.

PATHOPHYSIOLOGY
- Multifactorial causes
- Disruption in the growth of hair follicles is possible with infection, inflammation, trauma, or blockage of the receptor sites for stimulation of the cycle.

SYSTEMS AFFECTED
- Skin/exocrine
- Behavioral—may cause self-inflicted chewing, biting
- Gastrointestinal—especially dental disease; may cause anorexia, dysphagia, ptyalism
- Hemic/lymphatic/immune
- Ophthalmic—ophthalmic or dental disease may cause epiphora and conjunctivitis resulting in alopecia surrounding one or both eyes.

GENETICS
- Dental disease—avoid breeding affected animals as inheritance of dental disease is suspected.
- Fur chewing—avoid breeding animals that chew fur.

INCIDENCE/PREVALENCE
Common condition in chinchillas

GEOGRAPHIC DISTRIBUTION
N/A

SIGNALMENT
No specific age or sex predilection

SIGNS
- The pattern and degree of hair loss are important for establishing a differential diagnosis.
- Multifocal patches of alopecia—most frequently associated with folliculitis from mycotic or bacterial infection
- Large, diffuse areas of alopecia—indicate follicular dysplasia or metabolic component; not reported in chinchillas but should be considered
- May be acute or slowly progressive in onset

Historical Findings
- Inappropriate diet—fiber deficiency, other nutritional deficiencies
- Inappropriate frequency or complete lack of dust bath; use of inappropriate dust bath materials
- Inappropriate sanitation, ventilation
- Self-inflicted or conspecific barbering
- Drooling, dysphagia
- Ocular or nasal discharge
- History of fur slip, fur chewing

Physical Examination Findings
- Alopecia with or without scaling, crusting—distribution may help differentiate the disease process.
- Broken hair shafts—suggestive of barbering (self-inflicted or conspecific)
- Ptyalism—associated with dental malocclusion; a thorough oral examination is critical for evaluating for premolar/molar malocclusion
- Epiphora—associated with dental malocclusion; a thorough oral examination is critical for evaluating for premolar/molar malocclusion

CAUSES
- Normal shedding pattern—some chinchillas may lose hair in patches when shedding
- Behavioral—barbering; dominant chinchillas may chew or pull out hair of submissive cagemates
- Parasitic—ectoparasites (fleas, lice, and mites)—uncommon in chinchillas because of their dense coat
- Infectious—dermatophytosis, bacterial pyoderma; most often a secondary problem, especially moist dermatitis (e.g., ptyalism, epiphora, and urine scald)
- Trauma—fur slip due to excessive restraint; self- or conspecific-inflicted barbering, bite wounds
- Neoplastic—cutaneous lymphoma, trichofolliculoma, mast cell tumor
- Nutritional—especially protein and fiber deficiencies

RISK FACTORS
Poor husbandry: lack of dust baths, proper ventilation, and sanitation; nutritional deficiencies such as low-fiber diets leading to fur chewing and other deficiencies allowing for immunosuppression; traumatic handling leading to fur slip.

DIAGNOSIS

DIFFERENTIAL DIAGNOSIS

Differentiating Causes
Pattern and degree are important for differential diagnoses.

Symmetrical Alopecia
- Barbering—broken fur shafts identified on close inspection; most commonly on dorsal flanks, around face and ears; can have a "moth-eaten" appearance to the coat. Owners may or may not observe barbering between animals.
- Fur chewing—very common in chinchillas; may chew on fur constantly or intermittently and fur may regrow in between episodes. Usually chew dorsal flanks and sides, pregnant females may chew temporarily. Coat may have moth-eaten appearance.
- Matted fur associated with high environmental temperature (>80°F/26.7°C), humid environment, or if dust baths are inadequate or not provided.

Multifocal to Focal Alopecia
- Lack of proper dust bath—may cause poor, unkempt coat that becomes matted and sheds abnormally; may cause alopecia and accumulation of scale in matted areas
- Trauma
  - Bite wounds—alopecia, with or without erythema; can abscess; secondary *Staphylococcus* spp. or *Streptococcus* spp. infections may occur
  - Fur slip—alopecia, with or without erythema, no scaling
  - Ear trauma, including frost-bite alopecia with erythema, scaling, necrosis of pinnae
- Fur chewing—may chew on fur constantly or intermittently and fur may regrow in between episodes; usually chew dorsal flanks and sides, pregnant females may chew temporarily
- Dental disease—facial moist dermatitis associated most commonly with ptyalism or epiphora; alopecia, with or without erythema, scale, or ulceration; *Staphylococcus* spp. or *Streptococcus* spp. infections can occur secondary to moist dermatitis.
- Dermatophytosis—*Trichophyton mentagrophytes* are most common, but *Microsporum canis* and *M. gypseum* have been identified; partial or complete alopecia with scaling and pruritis; with or without erythema, not always ring-shaped; may begin as alopecia around eyes, nose, then spread to feet, body, genitals. May be first identified on the "grooming claw" (medial first digit) of hind limbs.
- *Cheyletiella* spp.—reported in chinchillas, lesions are usually located in the intrascapular or tail-base region and are associated with large amounts of white scale. Mites are readily identified on skin scrapes or acetate tape preparations on low power.
- Urinary tract infection—perineal moist dermatitis; alopecia, with or without erythema, scale, or ulceration
- Arthritis of hind limbs—perineal moist dermatitis; alopecia, with or without erythema, scale, or ulceration
- Lumbar spinal spondylosis—perineal moist dermatitis; alopecia, with or without erythema, scale, or ulceration

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• Pododermatitis of hind limbs—perineal moist dermatitis; alopecia, with or without erythema, scale, or ulceration
• Abscesses—anywhere on body; alopecia, with or without erythema, scale, ulceration
• Ear mites—alopecia around base of ear; may extend to head, neck, abdomen, perineal region, intense pruritis; brown-beige crusty exudate in ear canal and pinna
• Fleas—patchy alopecia; flea dirt will help differentiate; secondary pyoderma sometimes seen
• Contact dermatitis—alopecia, with or without erythema; scale on ventral abdomen and other contact areas
• Moist dermatitis—alopecia, with or without erythema, scale, or ulceration associated with urinary disease (urine scald), diarrhea, uneaten cecotropes, arthritis, pododermatitis, spinal spondylosis
• Neoplasia—cutaneous lymphoma, cutaneous epitheliotropic lymphoma (mycosis fungoides), trichofolliculoma, mast cell tumors; focal or diffuse alopecia; scaling and erythema; may see crust formation—not reported in chinchillas but should be considered.

CBC/BIOCHEMISTRY/URINALYSIS
To identify evidence of infection, inflammation, and organ function for underlying disease, especially with urine scald, perineal dermatitis, infectious organisms

OTHER LABORATORY TESTS
Fungal cultures—especially DTM for dermatophytes; two negative cultures should be obtained following treatment to ensure clearance of infection.

IMAGING
• Skull radiographs—to identify underlying dental disease in chinchillas with ptyalism, epiphora
• Whole body radiographs—to identify orthopedic, spinal, gastrointestinal, renal, reproductive diseases associated with perineal dermatitis or urine scald
• Abdominal ultrasound—to identify gastrointestinal, renal, reproductive diseases associated with perineal dermatitis or urine scald

DIAGNOSTIC PROCEDURES
• Skin scraping—micro-spatula with flat-ended blade (preferable) or dull edge of scalpel blade
• Acetate tape preparation—evaluate on low-power microscopy for ectoparasites
• Trichogram—cytology of epilated hairs to examine for lice, other ectoparasites, or eggs
• Skin biopsy—especially with suspicion of neoplasia, infectious organisms
• Woods lamp ultraviolet evaluation of *Microsporum canis* lesions; not very useful as a screening tool—many pathogenic dermatophytes, including *T. mentagrophytes,* do not fluoresce; false fluorescence is also common.
• Fungal culture—if dermatophytes are suspected

PATHOLOGIC FINDINGS
Gross and histopathologic findings will differ depending upon the underlying condition.

TREATMENT

APPROPRIATE HEALTH CARE
• Patients that appear otherwise normal are typically managed as outpatients; diagnostic evaluation may require brief hospitalization.
• Diseases associated with systemic signs of illness (e.g., pyrexia, depression, anorexia, and dehydration) or laboratory findings of azotemia and or leukocytosis warrant an aggressive diagnostic evaluation and initiation of supportive and symptomatic treatment.

NURSING CARE
• Subcutaneous fluids can be administered (30–50 mL/kg) as needed; IV access is difficult in chinchillas; lateral saphenous vein catheters often kink; consider intraosseous (IO) catheterization if intravascular fluids are needed.
• Base fluid selection on the underlying cause of fluid loss. In most patients, lactated Ringer's solution or Normosol crystalloid fluids are appropriate. Maintenance fluids are estimated at 100 mL/kg/day.

ACTIVITY
Dust baths should be administered at least 2–3 times weekly—minimize during treatment for infectious organisms (especially dermatophytes); do not reuse dust bath. Use only good-quality dust bathing materials.

DIET
• Some chinchillas will develop inappetence. Be certain the chinchilla is eating, or provide assisted syringe feeding of an herbivore critical care diet (e.g., Critical Care for Herbivores, Oxbow Animal Health, Omaha, NE, or Emeraid Herbivore, Lafeber Company, Cornell, IL) if anorectic to prevent the development, or exacerbation of, gastrointestinal dysmotility/GI stasis.
• Increasing water content in foods or via oral or parenteral fluids may increase fluid intake. Provide multiple sources of fresh water, including supplementing fresh water with small amounts of pure fruit juice (no added sugars), high water content vegetables, or soaking or misting fresh vegetables before offering.

CLIENT EDUCATION
• Do not breed animals with malocclusion or that chew their own fur, as both traits are potentially hereditary.
• Disinfect caging and cage materials in cases with infectious organisms; for dermatophytes, use 10% bleach solution.
• Discard wooden cage materials if infectious organisms
• Remove conspecifics if barbering is identified.

SURGICAL CONSIDERATIONS
N/A

MEDICATIONS

DRUG(S) OF CHOICE
• Varies with specific cause
• Fleas, mites (including *Cheyletiella* spp.), other ectoparasites—ivermectin 1% (0.4 mg/kg SC q10–14d × 3–4 doses); selamectin (Revolution, Zoetis, Parsippany, NJ; 15–30 mg/kg applied topically q21–28d × 3–4 doses); flea shampoos for kittens without permethrins, pyrethrins can be used. Treat all affected animals and clean the environment.
• Dermatophytes—itraconazole (5 mg/kg PO q24h] × 6–8w); terbinafine (20–40 mg/kg PO q24h × 4–6w) or griseofulvin (25 mg/kg PO q24h × 4–6w) for refractory cases; lime sulfur dips q7d has been used successfully—is odiferous and can stain; antifungal shampoos (ketoconazole/chlorhexidine combination) and antifungal sprays (miconazole, enilconazole) are available, but toxicity information not available for chinchillas.
• 0.5%–1% chlorohexidine solution for cleansing of affected areas
• Antihistamines (diphenhydramine, hydroxyzine) for severe pruritis—may cause drowsiness
• Nonsteroidal anti-inflammatory medications (meloxicam 0.5–1 mg/kg SC, PO q24h; carprofen 2–5 mg/kg SC, PO q24h) may be helpful with inflammatory conditions, analgesia for dental disease

CONTRAINDICATIONS
• Oral administration of antibiotics that select against gram-positive bacteria (penicillins, cephalosporins, macrolides, and lincosamides) can cause fatal enteric dysbiosis and enterotoxemia.
• Metronidazole may cause anorexia or reduced appetite in some chinchillas when administered PO; hepatic toxicosis has been anecdotally reported.
• Potentially nephrotoxic drugs (e.g., aminoglycosides, NSAIDs) should be avoided in patients that are febrile, dehydrated, or

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azotemic or that are suspected of having pyelonephritis, septicemia, or preexisting renal disease.
• Glucocorticoids or other immunosuppressive agents should be used only when no alternative is available and should be used with caution.
• Do not use fipronil or flea collars as toxicity in chinchillas is not known.
• Do not use organophosphate-containing products in chinchillas.

PRECAUTIONS
• Flea-control products are off-label use in chinchillas; safety and efficacy have not been evaluated in this species.
• Topical flea products such as permethrins and pyrethrins may be toxic in chinchillas.
• Prevent chinchillas and cagemates from licking topical spot-on products until dry.
• Toxicity—if any signs are noted, the animal should be bathed thoroughly to remove any residual products and then treated appropriately.
• Griseofulvin—bone marrow suppression reported in dogs, cats as idiosyncratic reaction or with prolonged therapy; not reported in chinchillas but may occur; consider weekly or bi-weekly CBC. Neurological effects reported in dogs and cats; monitor chinchillas for these signs. Teratogenic in first two trimesters of pregnancy.
• Immunosuppressive agents should be avoided.

POSSIBLE INTERACTIONS
None

ALTERNATIVE DRUGS
Ketoconazole has been utilized for dermatophytes in other species—safety and efficacy are unknown in chinchillas; hepatopathy reported in cats and dogs can be severe.

FOLLOW-UP

PATIENT MONITORING
Varies with cause

PREVENTION/AVOIDANCE
• Provide good-quality dust baths several times weekly to maximize coat quality.
• Feed diets with balanced protein and fiber for chinchillas.
• Separate animals that barber or fur chew from other animals.

POSSIBLE COMPLICATIONS
N/A

EXPECTED COURSE AND PROGNOSIS
Treatment times for dermatophytosis are long (4–8 weeks); treatment diligence necessary to clear infection; continue until two negative cultures are obtained.

MISCELLANEOUS

ASSOCIATED CONDITIONS
• Dental disease
• Musculoskeletal disease

AGE-RELATED FACTORS
N/A

ZOONOTIC POTENTIAL
Dermatophytosis and *Cheyletiella* can cause skin lesions in people.

PREGNANCY/FERTILITY/BREEDING
• Do not breed animals with malocclusion or that chew fur, as both traits are potentially hereditary.
• Griseofulvin contraindicated in pregnant animals during first two trimesters as it can be teratogenic
• Avoid ivermectin in pregnant animals.

SYNONYMS
Ringworm (dermatophytes)
Fur chewing (self-inflicted barbering)

SEE ALSO
Dermatophytosis

ABBREVIATIONS
DTM = dermatophyte test medium
GI = gastrointestinal

INTERNET RESOURCES
N/A

Suggested Reading

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