

Peer Reviewed

# Unresponsive Alopecia in an Older Dog

Lilly, a 9-year-old, 25-kg spayed female mixed-breed dog, was presented for evaluation of pruritic patches of alopecia of 4 months' duration.

**History.** The owners reported that the lesions were unresponsive to various courses of antibiotics and antiinflammatory doses of prednisone. Skin scraping and fungal culture results were negative, and Lilly had been treated empirically with various courses of antibiotics, including several courses of cephalexin (500 mg Q 12 H for 2 weeks) and 1 course of enrofloxacin (136 mg Q 24 H for 4 weeks). There was minimal to no improvement.

**Physical Examination.** The only remarkable findings were the skin lesions. Lilly had multifocal areas of alopecia affecting her trunk. Mild crusting and erythema were noted; however, no primary lesions were noted.

**Diagnostics.** Multiple superficial and deep skin scrapings were negative. Hairs were plucked and submitted for fungal (dermatophyte) culture. Skin cytology was also performed using clear tape; samples were stained with Diff Quik. Occasional bacteria (cocci) were seen with minimal evidence of inflammation.



## ASK YOURSELF ...

- What are the differential diagnoses for these multifocal areas of alopecia?
- What could have been done differently regarding therapy?
- Is there anything in the history that could help rank differential diagnoses?
- Can a bacterial process be ruled out?

CONTINUES

## DIAGNOSIS: *Mycosis fungoides* (epitheliotropic lymphoma)

**Bacterial Culture.** Bacterial culture is indicated to pursue the possibility of resistant infection. Cultures should be taken from intact lesions (eg, by gently opening a pustule using a sterile needle and culturette). In the absence of intact primary lesions, it is most appropriate to take a biopsy for culture in order to increase the chances of culturing the primary pathogen. Swabbing the skin surface is not considered an ideal technique for culture.

In this case, a skin biopsy was taken using sterile technique and submitted for aerobic culture. Culture grew a multidrug-resistant *Staphylococcus pseudintermedius*, sensitive to chloramphenicol. Chloramphenicol was prescribed (50 mg/kg Q 8 H) and owners were advised to wear gloves when handling the medication.

After 3 weeks, only partial improvement was noticed. Areas of alopecia were still present. Cytology was repeated and was negative for bacteria, suggesting that the chloramphenicol had been successful in treating the secondary bacterial component.

**Skin Biopsy.** Skin biopsy for histopathology is the next step in identifying the underlying disease. As a general rule it is best to clear secondary infections, as this makes it easier for the pathologist to determine a final diagnosis.

Several 6-mm biopsy punches were taken from the patient and submitted to a dermatopathologist. Histopathology

## FOLLICULAR OR NONFOLLICULAR?

### Diseases that cause folliculitis in a dog include:

- **Demodicosis:** Ruled out by deep skin scrapings, except with severe pododermatitis or areas of fibrosis and in shar-peis
- **Dermatophytosis:** Ruled out by fungal culture
- **Staphylococcal pyoderma:** Diagnosed by clinical signs and supportive cytology; due to the common occurrence of antibiotic resistance, bacterial cultures are performed in patients that do not respond to routine antibiotic therapy or have a chronic history of antibiotic use

### Nonfollicular conditions that can present with patchy alopecia include:

- **Autoimmune/immune-mediated** (eg, alopecia areata, sebaceous adenitis, pemphigus complex)
- **Endocrine diseases:** Alopecia is mostly truncal, sparing the head and the extremities
- **Neoplastic** (eg, mycosis fungoides): Mycosis fungoides typically presents in older dogs with alopecia, scaling, pruritus, and nasal and lip depigmentation, and progresses to nodules and plaques. Pruritus, scaling, and erythema in older dogs that do not have a history of chronic skin disease or allergies should increase suspicion of cutaneous lymphoma and prompt submission of a biopsy for histopathology.

was diagnostic for mycosis fungoides, also known as epitheliotropic lymphoma. This tumor of skin and mucous membranes typically affects older dogs and presents with depigmentation of the nose and lips, erythema, and scaling; it later progresses into nodules and plaques. Pruritus is present in many cases.

**Medical Therapy.** Prognosis is poor for this condition and there is no evidence that therapy increases survival time.

Lomustine, a chemotherapeutic-alkylating agent commonly referred to as CCNU, was prescribed for Lilly.

Lomustine is absorbed rapidly from the gastrointestinal tract and prescribed at a dose of 50 to 90 mg/m<sup>2</sup> of body surface area PO every 21 days. In order to decrease nausea, lomustine should be given on an empty stomach. Side effects include bone-marrow suppression, including anemia thrombocytopenia and leukopenia.

**Outcome.** This patient responded well to therapy but was euthanized a few months later due to unrelated reasons.

See Aids & Resources, back page, for references and suggested reading.

It is important to remember that chloramphenicol has the potential to induce aplastic anemia in humans handling it; therefore, client education is crucial.



## DID YOU ANSWER ...

- Differential diagnoses for alopecia include 2 large categories—follicular and nonfollicular (see **Box**, page 32). In addition, many allergic and parasitic skin diseases can manifest with pruritus and lead to self-inflicted alopecia. To determine whether alopecia is primary or secondary (ie, self-inflicted), pluck hairs and examine under a microscope: if the tip of a hair is broken, the alopecia is self-inflicted. The hair root can also be examined to determine if the hair is in an active growing stage (anagen stage) versus resting stage (catagen stage). With endocrine disease, most hairs are in resting phase.
- Cephalixin therapy was not of sufficient duration for superficial pyoderma (appropriate therapy is 3–4 weeks). The rule of thumb is to continue antibiotic therapy 7 to 10 days past resolution of clinical signs. Similarly the dose was not sufficient. The appropriate dose for cephalixin is 22 to 30 mg/kg Q 24 H.
- It would have been helpful to know whether Lilly had a chronic history of pruritic skin disease (ie, pruritus that starts in an older dog is more suggestive of cutaneous lymphoma or food allergy) and whether primary lesions had been noted by the owners.
- Staphylococcal pyoderma is extremely common. Due to the increased frequency of antibiotic resistance, it is advisable to perform culture and sensitivity testing rather than treat empirically with antibiotics. The best way to do a skin culture is to submit a skin biopsy.

## FIND MORE

For step-by-step instructions on skin biopsies, read:

- **Procedures Pro: How to Get the Most from Skin Biopsies** (July 2004)
- **Procedures Pro: Obtaining a Skin Biopsy for Histopathologic Evaluation** (August 2005)

Available at [cliniciansbrief.com](http://cliniciansbrief.com)



## FELIMAZOLE™ (methimazole)

### Coated Tablets

2.5 mg and 5 mg strengths

For oral use in cats only

**BRIEF SUMMARY** (For Full Prescribing Information, see package insert.)

**CAUTION:** Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

**DESCRIPTION:** Methimazole is a thioureylene antithyroid drug, which inhibits the synthesis of thyroid hormones. Methimazole (1-methylimidazole-2-thiol) is a white, crystalline substance that is freely soluble in water. The chemical formula is C<sub>4</sub>H<sub>6</sub>N<sub>2</sub>S. Molecular weight is 114.16.

**INDICATIONS:** FELIMAZOLE (methimazole) Coated Tablets are indicated for the treatment of hyperthyroidism in cats.

**CONTRAINDICATIONS:** Do not use in cats with hypersensitivity to methimazole, carbimazole or the excipient, polyethylene glycol. Do not use in cats with primary liver disease or renal failure, autoimmune disease, hematological disorders, or coagulopathies. Do not use in pregnant or lactating queens. Laboratory studies of methimazole in rats and mice have shown evidence of teratogenic and embryotoxic effects.

**WARNINGS:** Methimazole has anti-vitamin K activity and may induce bleeding diathesis without evidence of thrombocytopenia.

**HUMAN WARNINGS:** Not for use in humans. Keep out of reach of children. Methimazole is a human teratogen. Wash hands with soap and water after administration of methimazole or contact with the litter of treated cats. Do not break or crush tablets. Wear protective gloves to prevent direct contact with litter, feces, urine, or vomit of treated cats, and broken or moistened tablets. Methimazole may cause vomiting, gastric distress, headache, fever, arthralgia, pruritus, and pancytopenia. In the event of accidental ingestion/overdose, seek medical advice immediately and show the product label to the physician.

**PRECAUTIONS:** Use of FELIMAZOLE Coated Tablets in cats with renal dysfunction should be carefully evaluated. Reversal of hyperthyroidism may be associated with decreased glomerular filtration rate and a decline in renal function, unmasking the presence of underlying renal disease. Cats on methimazole therapy should be monitored closely for any sign of illness including fever, lymphadenopathy, or signs of anemia, as these may be associated with serious adverse reactions.

**ADVERSE REACTIONS:** The most common adverse reactions reported are lethargy, anorexia, vomiting, diarrhea/loose stool, abnormal vocalization, and self-induced excoriations of the head and neck. Serious, but less common, adverse reactions may include lymphadenopathy, hepatopathy, immune mediated anemia, thrombocytopenia, and agranulocytosis. Depression/withdrawn behavior, weight loss, hair coat abnormalities, increased blood urea nitrogen (BUN), weakness, and agitation have also been reported as associated with long-term use.

  
**FELIMAZOLE™**  
(methimazole)

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