

Acral Lick Dermatitis: Behavioral Solutions

In the June 2012 issue, Dr. Karin Beale addressed acral lick dermatitis (ie, lick granulomas) from a dermatologist's perspective. This article presents a behaviorist's view of the same affliction.

Canine acral lick dermatitis (ALD) is a relatively common condition in which excessive licking can lead to raised, firm, alopecic, eroded to ulcerated lesions that are generally on the dorsal aspect of a forelimb as well as metatarsal/tarsal areas. ALD is multifactorial but can often be caused by an underlying medical component. If ALD persists after medical causes have been controlled or eliminated, it can be considered a stereotypic behavior.

ALD in dogs has served as a model for compulsive disorder in humans.¹ Neuroimaging and pharmacologic studies have demonstrated evidence of dysfunction in the prefrontal–basal ganglia–thalamic circuits and the serotonergic neurotransmitter systems in both human and veterinary obsessive–compulsive patients.² Regardless of origin, ALD can be difficult and frustrating to treat.

Prognosis for controlling or resolving ALD is highly variable, as chronic severe lesions are often difficult to resolve. Relapse may be common, particularly if medication is withdrawn and/or environmental stressors are not adequately addressed. If owners are attentive to enrichment and behavior modification, affected dogs can often be cured.

CONTINUES

How I Treat Acral Lick Dermatitis

- Assess patient health status
- Assess patient behavioral history
- Institute management to prevent further injury
- Initiate treatment of local lesion
- Implement environmental changes
- Institute behavior modification for environmental & social stressors
- Initiate psychopharmacologic treatment
- Monitor treatment response

ALD = acral lick dermatitis



✓ Assess patient health status

Physical Examination

- Complete physical examination to identify ancillary health issues that may exacerbate or complicate ALD treatment
- Determine extent, location, and severity of the ALD lesion; lesions in certain locations can help define the underlying cause (eg, arthritis, abdominal pain, trauma)

Diagnostics & Imaging

- Perform minimum database in anticipation of psychopharmacologic use
- Perform ancillary diagnostics
 - As appropriate for patient's age, breed, and health status
 - Rule out medical disorders (including any that might complicate wound healing)
 - Rule out endocrine disorders (eg, hypothyroidism, hyperadrenocorticism)
 - As necessary, including skin scraping, fungal culture, biopsy, culture and sensitivity testing, radiography
- Assess underlying osseous change ± radiographs

✓ Assess patient behavioral history

- In a behavioral diagnosis, ALD is often attributed to boredom
 - However, assessment inadequately describes degree of behavioral pathology generally necessary for self-mutilation
 - Compulsive behavior is customarily attributed to environmental stress, conflict, or

chronic environmental deprivation (eg, confinement)³

- Frequency, time of occurrence, and duration can influence treatment

Information About Dog's Routine

- Diet and frequency of feeding
- Time spent indoors vs outdoors
- Type and extent of physical, aerobic exercise (including off-property excursions)
- Other animals in the home and their relationship with the patient
- Location where the patient sleeps and spends time when left alone
- Toys or activities available and whether they are used

Information About Dog's Behavior

- Consider additional owner complaints about the dog's behavior before delineating the treatment program (**Figure 1**)
 - Aggression (eg, toward people, animals)
 - Anxiety (eg, separation, noise, general)

✓ Institute management to prevent further injury

- Facilitate healing with immediate control of excessive licking
- Apply local bandages ± concurrent application of bitter substances
- Apply restraint collar
 - Behavioral profile can influence the nature and type of restraint device

ALD = acral lick dermatitis

Before deciding the best treatment protocol, practitioners need to consider all information related to the individual dog's routine and behavior, including owner complaints such as (A) aggression toward people or (B) extreme anxiety behavior displayed as a result of noise/storm phobia.



- Fearful, anxious dogs may do poorly with large (especially opaque) Elizabethan collars
- Encourage moving outdoor dogs indoors or providing more opportunities for them to socialize with family members

✔ Initiate treatment of local lesion

- Administer appropriate long-term systemic antibiotics based on deep culture and sensitivity testing, especially if considerable granulation tissue is present
- Administer topical products to reduce inflammation and irritation
- Consider laser therapy
- Consider allergy potential

✔ Implement environmental changes

- Note that environmental deprivation and minimal opportunities for species-appropriate behaviors often contribute to compulsive or repetitive behaviors
- Encourage physical, aerobic exercise appropriate to age, breed, and health status
 - Recommend excursions unless the dog's behavior (eg, uncontrollable aggression in public) prevents it
 - Initiate use of food-dispensing toys and activities (**Figure 2**)
- Develop opportunities for breed-specific behavior (eg, digging pits for terriers, herding activities for herding breeds, lure coursing for sight hounds)
- Encourage canine sports (eg, rally, agility, tracking)
- Encourage sufficient and quality socialization with humans

✔ Institute behavior modification for environmental & social stressors

- Keep the dog isolated from situations that incite anxious and/or aggressive behavior to prevent rehearsal of negative behavior patterns
- Consistently reinforce relaxed behavior with attention, praise, small food treats, or favored activities (eg, fetch, walks)
- Recommend dog-owner interactions in which the owner only interacts with the dog when it is calm (ie, reinforcing the behavior)
- Train basic obedience cues using positive reinforcement to enrich and facilitate relaxation
- Reinforce alternative desirable behaviors (bone chewing, play, resting, playing with other animals) to reduce time spent licking excessively
- Begin contextual relaxation conditioning
 - Reinforce behaviors for relaxation in the presence of controllable cues (eg, special training mat; **Figure 3**)
 - Calm behaviors include sighing, moderate blinking, lateral recumbency, resting with head on the ground, observable reductions in skeletal muscle tension
- Relaxation training is used to countercondition the dog to environmental stressors (eg, other animals, visitors, storms/noises, gradual owner departures)⁴

CONTINUES



Proactive environmental modification includes designated areas for appropriate play activities, along with food-dispensing devices and other toys.



Contextual relaxation conditioning involves behavior reinforcement based on controllable cues. Special training mats, such as the one shown here, help reinforce alternative desirable behaviors.

If owners are attentive to enrichment and behavior modification, affected dogs can potentially be cured.

➤ Positive punishment using electronic shock may be successful in some cases⁵; however, this approach is controversial

Initiate psychopharmacologic treatment

- Start treatment; reevaluate after 4 weeks
 - Titrate if little or no response
- Administer anticomulsive medications with serotonergic modulation^{1,6,7}
 - Clomipramine at 2–3 mg/kg q12h
 - Fluoxetine at 1–2 mg/kg q6h
 - Sertraline at 1–3 mg/kg q6–12h
- Opioid antagonists (naltrexone, nalmeferine) have proven useful in some ALD cases⁸
- Continue medication for >3 months past resolution of lesion(s) and behavioral signs
- Wean medications slowly; longer

treatments require slower weaning to prevent relapse

Monitor treatment response

- Track response to medications closely and frequently, especially within 6–8 weeks after initiation
 - Adverse reactions to serotonergic agents generally arise within the first 6 weeks
 - Sedation, appetite suppression
 - Agitation, restlessness
 - Increased fearfulness, noise hypersensitivity
- Journal (eg, written, verbal) behavior issues to allow objective assessment of treatment response
- Catalog size of dermatologic lesions on weekly or monthly basis

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

Take-Home Points

- Immediate control of excessive licking is necessary to facilitate healing
- Before planning treatment, consider additional concerns (eg, aggression, anxiety)
- Human socialization, breed-specific activities, and obedience training can be beneficial



Surolan®

otic suspension
(miconazole nitrate, polymyxin B sulfate, prednisolone acetate)
Antifungal, antibacterial and anti-inflammatory
For otic use in dogs only

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

DESCRIPTION: SUROLAN contains 23 mg/mL miconazole nitrate, 0.5293 mg/mL polymyxin B sulfate and 5 mg/mL prednisolone acetate. Inactive ingredients are colloidal silicon dioxide and liquid paraffin.

INDICATIONS: SUROLAN is indicated for the treatment of canine otitis externa associated with susceptible strains of yeast (*Malassezia pachydermatis*) and bacteria (*Staphylococcus pseudintermedius*).

DOSAGE AND ADMINISTRATION: Shake well before use. The external ear should be thoroughly cleaned and dried before the initiation of treatment. Verify that the eardrum is intact. Instill 5 drops of SUROLAN in the ear canal twice daily and massage the ear. Therapy should continue for 7 consecutive days.

CONTRAINDICATIONS: SUROLAN is contraindicated in dogs with suspected or known hypersensitivity to miconazole nitrate, polymyxin B sulfate, or prednisolone acetate. Do not use in dogs with known perforated tympanum. Do not use with drugs known to induce ototoxicity.

WARNINGS: Not for use in humans. Keep this and all drugs out of reach of children.

ANIMAL WARNINGS: Do not administer orally. For otic use only.

PRECAUTIONS: Before instilling any medication into the ear, examine the external ear canal thoroughly to be certain the tympanic membranes are not ruptured. If overgrowth of non-susceptible bacteria or fungi occurs, treatment should be discontinued and appropriate therapy instituted. Long-term use of topical otic corticosteroids has been associated with adrenocortical suppression and iatrogenic hypoadrenalism in dogs. The safe use of SUROLAN in dogs used for breeding purposes, during pregnancy, or in lactating bitches, has not been evaluated.

ADVERSE REACTIONS: In the field study, 161 dogs treated with SUROLAN were included in the safety database. Two dogs experienced reduced hearing at the end of treatment; on follow-up one dog had normal hearing capacity while the other case was lost for follow-up. The owner of another dog reported that on day 4 of treatment, build-up of the medication decreased the dog's hearing. At the end of treatment, this dog had normal hearing as assessed by the investigator. Residue build-up was reported in 1 dog and pain upon drug application in another dog. A total of 161 dogs treated with the active control was included in the safety database and adverse reactions were reported in 8 dogs treated with the active control. One dog experienced reduced hearing at the end of treatment. Residue build-up was noted in 1 dog. Four dogs vomited during treatment, 1 dog showed red pustules on the pinna and head shaking was observed in another dog. Foreign market experience: the following adverse events were reported voluntarily during post-approval use of the product in foreign markets: deafness, reduced hearing, topical hypersensitivity reactions and red blisters on pinna. For a copy of the Material Safety Data Sheet (MSDS), for technical assistance or to report adverse reactions call Vetoquinol USA Inc. at 1-800-835-9496.

PHARMACOLOGY: By virtue of its 3 active ingredients, SUROLAN has antibacterial, antifungal, and anti-inflammatory activity. Polymyxin B sulfate is a broad-spectrum polypeptide antibiotic with activity against both Gram-positive and Gram-negative species. Miconazole nitrate is a synthetic imidazole derivative with antifungal activity and antibacterial activity against Gram-positive bacteria. Moreover, synergistic effects between miconazole nitrate and polymyxin B sulfate have been demonstrated in an in vitro study(1). Prednisolone acetate is a glucocorticoid with antiinflammatory activity. A study performed using an experimentally-induced model of ear inflammation in mice demonstrated the effectiveness of prednisolone acetate in treating ear inflammation either alone or in combination with the other active ingredients of SUROLAN(2).

MICROBIOLOGY: The compatibility and additive effect of each of the components in SUROLAN was demonstrated in a component effectiveness and non-interference study. An in vitro study of organisms collected from clinical cases of otitis externa at a veterinary teaching hospital and from dogs enrolled in the clinical effectiveness study for SUROLAN determined that polymyxin B sulfate and miconazole nitrate inhibit the growth of bacteria and yeast commonly associated with canine otitis externa. Furthermore, a synergistic effect of the two antimicrobials was demonstrated. The addition of prednisolone acetate to the combination did not impair antimicrobial activity of any clinically-significant extent.

ANIMAL SAFETY: The following adverse reactions were reported in a study when SUROLAN was administered at 1X, 3X and 5X for 42 consecutive days (6 times the recommended treatment duration) in laboratory Beagles: hypersensitivity reactions which included mild erythema and hyperemia, painful and sensitive ear canals on examination, changes in hematology, clinical chemistry and urinalysis values consistent with the systemic absorption of topical corticosteroids, and veterinary observations of pale ear canals.

EFFECTIVENESS: Of 337 dogs enrolled in the field study, 176 dogs were included in the effectiveness database, 91 were treated with SUROLAN and 85 were treated with an FDA-approved active control. Clinical evaluations of otitis externa included pain/discomfort, swelling, redness, and exudate. A non-inferiority evaluation was used to compare SUROLAN with the active control with respect to each clinical sign of otitis externa and overall clinical improvement. SUROLAN was determined to be non-inferior to treatment with the active control for otitis externa. *Malassezia pachydermatis* and *Staphylococcus pseudintermedius* were identified pre-treatment in at least 10 cases that were clinically responsive to SUROLAN.

Table 1. Mean Percentage of Improvement in Clinical Signs of Otitis Externa

Clinical Sign	SUROLAN N=91	Active control N=85
Pain/discomfort	94.4%	91.7%
Swelling	89.1%	90.5%
Redness	91.2%	86.1%
Exudate	83.1%	82.1%
Overall	96.7%	95.2%

HOW SUPPLIED: SUROLAN is available in 15 mL and 30 mL plastic dispensing bottles with applicator tip for otic use.

STORAGE AND HANDLING: Store at or below 25°C (77 °F).

NADA 141-298, Approved by FDA.

Manufactured for Vetoquinol USA Inc. by:

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