

Treatment

Key to treatment is a discussion with the owner regarding the suspected or known cause of the otitis externa, whether the otitis is curable, and whether treatment must be longterm for resolution or lifelong management will be required. All primary and secondary causes and predisposing factors need to be identified, managed, and treated. Management of pain or pruritus must be included in the initial treatment protocol. Tramadol for the first 5–7 days at 5 mg/kg, PO, tid, may be especially beneficial. In addition, otitis externa is one of the few dermatologic conditions in which glucocorticoids are beneficial in the face of concurrent antimicrobial use or sepsis. Glucocorticoids decrease swelling of the ear canal and may be key to successful treatment. Prednisone or triamcinolone is used most commonly. Duration depends on the severity. Ear hygiene is important; in particular, the hair from the pre- and periauricular area should be clipped, as well as hair from the surface of the inner pinnae and ends of the ears. This facilitates cleaning and treatment of the ears. Plucking of hair from the ear canal is controversial but may be needed to adequately resolve the ear infection. Hair plucking is painful and should be done under anesthesia.

The first ear cleaning should be done in the veterinary clinic, and owners should be instructed not to clean the ears until recheck in 5–7 days. Owners are often unable to clean the ears and/or are too aggressive, causing further damage. Owners should initially focus on administration of topical and/or systemic drugs and can begin to clean the ears after the first recheck and if the otitis is resolving. It is important to remember that topical medications are inactivated by exudates, and excessive cerumen may prevent medications from reaching the epithelium. The ears should be gently cleaned with an ear cleaner that will remove the debris in the canal. Thick, dry, or waxy material requires a ceruminolytic solution such as carbamide peroxide or dioctyl sodium sulfosuccinate (DSS). If rods are seen, the ear cleaner should contain squalene, because one possible cause is *Pseudomonas*, which can produce a biofilm that protects bacteria from antibiotics. The ears should be thoroughly rinsed with warm water to remove residual ear cleaner. If the tympanic membrane is ruptured, detergents and DSS are contraindicated; milder cleansers (eg, saline, saline plus povidone iodine, Tris EDTA) should be used to flush the ear.

Effective treatment may require both topical and systemic antimicrobial therapy, along with pain medications and glucocorticoids. The duration of treatment may vary from 7–10 days to >30 days, depending on the diagnosis. In treatment of acute bacterial otitis externa, antibacterial agents in combination with corticosteroids reduce exudation, pain, swelling, and glandular secretions. The least potent corticosteroid that will reduce the inflammation should be used (see [Corticosteroids](#)).

Most commercial topical products contain a combination of antibiotic/antifungal and glucocorticoids. The volume of the ear canal in most dogs is 1 mL, and adequate treatment requires instillation of at least this volume twice daily. Products with an aqueous base or those that have a thin film should be used; ointments are to be avoided.

Irritating medications (eg, home remedies and vinegar dilutions) should be avoided. They cause swelling of the lining of the ear canal and an increase in glandular secretions, which predispose to opportunistic infections. Substances that are usually not irritating in normal ear canals may cause irritation in an ear that is already inflamed. This is particularly true of propylene glycol. Powders, such as those used after plucking hair from the canal, can form irritating concretions within the ear canal and should not be used.

Systemic therapy should be incorporated into the treatment regimen in most cases of chronic otitis and in any case in which otitis media is suspected. The most common cause of recurrent otitis externa is undiagnosed otitis media. Failure to use systemic antimicrobial therapy is an important cause of chronic ear disease in dogs. Systemic antibiotics should be used when neutrophils or rod-type bacteria are found on cytology, in cases of therapeutic failure with topical antimicrobial agents, in chronic recurring ear infections, and in all cases of otitis media. (Also see [Systemic Pharmacotherapeutics of the Integumentary System](#).) Yeast infections in dogs can be treated with oral ketoconazole 5 mg/kg/day, PO, for 15–30 days. Ketoconazole should not be used in cats; itraconazole 2–3 mg/kg/day for 15–30 days or one week on/one week off is recommended.

Duration of treatment will vary depending on the individual case but should continue until the infection is resolved based on reexamination and repeat cytology and culture. Animals with bacterial and yeast infections should be physically examined, with cytologies evaluated weekly to every other week until there is no evidence of infection. For most acute cases, this takes 2–4 wk. Chronic cases may take months to resolve, and in some instances, a therapeutic regimen must be continued indefinitely.

Methicillin-resistant *Staphylococcus intermedius* and *Pseudomonas* otitis (caused by *Pseudomonas aeruginosa*) have emerged as frustrating and difficult perpetuating causes of otitis because of the development of resistance to most common antibiotics. These infections are often chronic in course (>2 mo) and associated with marked suppurative exudation, severe epithelial ulceration, pain, and edema of the canal. Successful treatment is multifaceted and should include the following steps: 1) identify the primary cause of the otitis and manage it, 2) remove the exudate via irrigation of the ear canal, 3) identify and treat concurrent otitis media, 4) select an appropriate antibiotic from the results of culture and mean inhibitory concentration on the organism and use it at an effective dosage for an appropriate duration, and 5) treat topically and systemically until the infection resolves (weeks to months).

The best treatment of chronic otitis is prevention. In addition to identifying the cause of acute otitis, topical and/or systemic medications should be chosen based on cytology or culture; they should have a narrow spectrum and be specific for the current condition. Aminoglycosides and fluoroquinolone antibiotics should not be used unless absolutely required for successful treatment but are the most common ingredients in topical otic medications. Because many topical products contain a combination of glucocorticoid, antibiotic, and antifungal medications, it is imperative to educate the owner on proper use (frequency and duration). Many owners discontinue treatment when the ear “looks better” before the

infection is resolved. Polymyxin B and fluoroquinolone antibiotics have shown the best success in controlling *Pseudomonas* infections in cases in which resistance has been identified through culture. However, resistance is developing to fluoroquinolones.

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