

Otitis Externa

A GUIDE TO CHOOSING THE RIGHT THERAPY

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As we discussed in a previous article, otitis externa is a frequent presenting complaint requiring a systematic approach to resolve. This article will discuss the basics of how to choose therapy for otitis externa.

One important note before we proceed; no two cases of otitis externa are exactly alike, so practitioners need to use the information collected during examination to fine-tune their recommendations. I will present seven common otitis externa scenarios to make the discussion easier. Specific ingredients will be discussed individually but almost all of the commercially available otic preparations are combinations of antibiotic, antifungal, and steroid medications.

#1 UNCOMPLICATED OTITIS EXTERNA

Patients in this category generally do not have a long history of otitis. The ear canal is relatively normal although erythema is likely present. Cytology usually shows cocci, yeast, or both. Rod-shaped bacteria, generally associated with Gram-negative infections,

are very uncommon. If there is an underlying allergy, it is mild or just beginning. This presentation will respond to almost any otic product you choose. Common choices include gentamicin, florfenicol, or polymyxin as the antibiotic and clotrimazole, miconazole, or terbinafine as the antifungal drug. Some cases will respond to daily ear cleaning.¹ Other cases will respond to less common therapeutics such as microsilver and lactoferrin/lactoperoxidase.

#2 OTITIS WITH SEVERE INFLAMMATION (ERYTHEMA, EDEMA, OR BOTH)

Patients in this category typically have a history of otitis. Cytology is still likely to show cocci and yeast although with chronicity the likelihood of rod-shaped bacteria increases. There is almost always an underlying allergy and if otitis externa occurs frequently the allergy needs to be better controlled. Using an otic product with a very potent topical steroid such as mometasone or fluocinonide is advisable. Alternatively, you might prescribe oral steroids in addition to a topical product with a weaker steroid such as betamethasone or prednisolone. If these infections are difficult to resolve, it is usually because of failure to address the underlying allergy or poor pet owner compliance. Bacterial infections in this category typically respond to gentamicin, florfenicol, or polymyxin. Residual products can be a good choice for this category as well as uncomplicated otitis externa discussed above. Two residual otic treatments with florfenicol are now commercially available. Both of these products represent a dramatic improvement over compounded products to pack the ear canal. Compounded medications do not deliver consistent medication dosages. The stability of compounded products is also questionable. Lastly, packing the ear canal is not ideal for the health of the ear canal epithelium.



#3 RESISTANT BACTERIAL INFECTION GRADE ONE

If you have reached this category the ear infection has not responded to first-line treatment, typically gentamicin. Before making drastic changes to your therapeutic plan ensure that the lack of response isn't due to poor pet owner compliance or inadequate cleaning. Cytology is important to determine whether the microflora has changed (perhaps from cocci to rods) or if the response was only partial (perhaps the yeast are gone but the cocci remain). If the owner has followed your instructions and bacteria persist, choose a different topical antibiotic such as orbifloxacin or enrofloxacin. If you have not used polymyxin yet this drug is another option. Polymyxin is inactivated by purulent exudate so be mindful of your otoscopic exam findings and your client's ability

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to clean the ear before prescribing it. If rod-shaped bacteria are found on cytology, an ear wash containing tris-EDTA will be helpful. When using tris-EDTA, clean the ear canal thoroughly and allow it to dry for 10 to 20 minutes before applying the otic antibiotic. I am less likely to use a sustained release product in these cases because cleaning is not recommended for an extended length of time after application and cleaning is important to reduce the bacterial load. You may consider performing a bacterial culture at this point. However, remember that otic culture results do not always correlate well with response to therapy. The two main reasons for this lack of correlation are:

- 1) Bacteria with different sensitivities may be present at different locations in the ear canal. The culture swab may not have collected all the bacterial species present.

- 2) Bacterial culture and sensitivity results are based on blood levels of antibiotics and significantly higher levels can be attained when treating topically. Also consider sedating these patients for a thorough ear cleaning to remove inflammatory bacterial toxins and debris that can inactivate the drugs you are prescribing.

#4 RESISTANT BACTERIAL INFECTION GRADE TWO

At this point, the infection has not resolved after using two or three different antibiotics. Culture and sensitivity, even though not precise, are warranted to guide therapy. Based on culture results you might need to treat with mupirocin, amikacin, or tobramycin. Timentin was an excellent option for patients in this category before it was discontinued. Compounded formulations of Timentin (ticarcillin/clavulanate) are available but I caution against using them. The purity and efficacy of compounded antibiotics are unreliable and increase the risk that bacteria will develop resistance. This class of antibiotics is used to fight severe multi-drug resistant infections in people. Imprecise and indiscriminant use in dogs increases the risk that these drugs won't help people in the future. Sedation for thorough ear cleaning is often necessary in these patients. Expect to clean and medicate these ears twice daily. Oral antibiotic therapy (based on culture results) might be helpful but can only be considered adjunctive therapy. If you are not comfortable with these cases consider referring them to a dermatologist.

#5 OTITIS EXTERNA WITH OTITIS MEDIA AND A RUPTURED TYMPANIC MEMBRANE

Otitis media may result from otitis externa and contribute to chronic ear disease. Otitis media may also occur without otitis externa although this scenario will not be addressed here. Many patients with otitis media will present with a head tilt and some degree of Horner's syndrome. Sedation is recommended to obtain a deep culture from the ear canal and clean it thoroughly. Oral antibiotic therapy

can be beneficial for patients with otitis media but it does not replace topical treatments. Antibiotic selection should be based on bacterial culture results. It is important to communicate with clients that no topical product is considered 100% safe to use in the ear when the tympanic membrane is ruptured. However, certain medications have increased risk of causing hearing loss such as aminoglycoside antibiotics and chlorhexidine at concentrations of 2% or greater.² To be clear, this does not mean these products will cause hearing loss in every patient with a damaged tympanic membrane. Topical enrofloxacin is the most common antibiotic choice when the tympanum is ruptured. Topical antifungal agents and steroids are rarely implicated in cases of treatment-induced hearing loss. These patients may also benefit from referral to a dermatologist.

#6 CHRONIC YEAST OTITIS

Chronic yeast otitis often results from underlying allergic dermatitis and may be the only symptom the dog expresses. High humidity in the ear canal, typically from frequent swimming, can also be a key precipitating factor. Keeping the ear canals clean is essential to treatment success because abnormal cerumen (cerumen found in unhealthy ear canals) promotes *Malassezia* growth. *Malassezia* can also form biofilm to protect them from topical antifungal drugs.³ If the ear wax is thick and sticky, a ceruminolytic ear wash would be helpful. If the ear wax is relatively normal I recommend a wash that contains ketoconazole. Many topical antifungals are available: silver sulfadiazine, thiabendazole, terbinafine, nystatin, ketoconazole, clotrimazole, miconazole, and posaconazole. Silver sulfadiazine and thiabendazole are the least effective of these options.^{4,5} Posaconazole represents the newest and most potent topical antifungal available in a veterinary otic medication. Also, some patients will respond well to frequent cleaning with an acetic/boric acid ear wash alone.¹

#7 CONSTRICTED/COMPROMISED EAR CANAL

These patients have a long history of otitis and an underlying allergy. You will have to decide if the ear can be medically managed or if total ear canal ablation surgery would be more effective. Chronic inflammation and remodeling change the shape and size of the ear canal which is a major impediment to successful medical treatment. These patients typically require large doses of oral steroids to reduce ear canal inflammation. Some patients will not tolerate high doses of steroids and others won't clinically improve. Culturing the ear canal and sedating for ear cleaning can be very helpful. I recommend liquid medications over ointments or creams because they disseminate better in constricted ear canals. Culture and medical history will guide which topical antibiotic you prescribe. Referral to a dermatologist is an option to consider for these dogs, especially if the owner strongly wishes to avoid surgery.

Remember, choosing the right topical antimicrobial agent is important but is only one aspect of treating otitis externa. The other steps — otoscopic exam, cytological exam, cleaning, evaluating response to therapy, and looking for an underlying cause — must not be forgotten.

REFERENCES

1. Mason CL, Steen SI, Paterson S, Cripps PJ. Study to assess in vitro antimicrobial activity of nine ear cleaners against 50 *Malassezia pachydermatitis* isolates. *Vet Dermatol.* 2013 June; 24(3): 362-6.
2. Igarashi Y, Oka Y. Vestibular ototoxicity following intratympanic applications of chlorhexidine gluconate in a cat. *Arch Otorhinolaryngol.* 1988; 245(4): 210-7.
3. Figuereda LA, Cafarchia C, Otranto D. Antifungal susceptibility of *Malassezia pachydermatitis* biofilm. *Med Mycol.* 2013 Nov; 51(8): 863-867.
4. Schmidt A. In vitro activity of climbazole, clotrimazole, and silver-sulfadiazine against isolates of *Malassezia pachydermatitis*. *Zentralbl Veterinarmed B.* 1997; June; 44(4): 193-7.
5. Peano A, Beccati M, Chiavassa E, Pasquetti M. Evaluation of the antifungal susceptibility of *Malassezia pachydermatitis* to clotrimazole, miconazole, and thiabendazole using a modified CLSI M27-A3 modulation method. *Vet Dermatol.* 2012 April; 23(2): 131-5.

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