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How I Treat... Otitis Media/Interna

AN INTERVIEW WITH DR. LORI THOMPSON

Today's Veterinary Practice introduces our new column, **How I Treat**. This column is based on the popular How I Treat sessions presented at the annual NAVC Conference in Orlando, Florida (navc.com/conference). This column features interviews with leading veterinary specialists on pertinent clinical topics, with the goal of bringing practitioners essential information on therapeutic approaches.



In this **How I Treat** interview, Lori Thompson, DVM, DACVD, answers our questions about key treatment protocols for otitis media/interna. **Otitis media**—inflammation of the middle ear structures, occurs in dogs and cats of all ages and presents unilaterally or bilaterally.¹ Untreated otitis media can lead to **otitis interna**—inflammation of the inner ear structures—or to rupture of an intact tympanic membrane with subsequent otorrhea or otitis externa.¹

Q. If a culture is not available to provide guidance on antimicrobial therapy, what is the best antibiotic approach to ensure successful treatment?

A. If a culture of the middle ear is not available or feasible, the antibiotic choice is best based on

TABLE 1 Selected Antibiotic Treatment for Otitis Media Based on Cytology Results

CYTOLOGY RESULT	ANTIBIOTIC	DOSAGE
Cocci (likely <i>Staphylococcus</i>)	Cefpodoxime	10 mg/kg PO Q 24 H
	Cephalexin	22–30 mg/kg PO Q 12 H
	Clindamycin	10 mg/kg PO Q 12 H
Mixed infection	Enrofloxacin	10–20 mg/kg PO Q 24 H
	Marbofloxacin	5 mg/kg PO Q 24 H

cytologic findings. If cocci are the predominant bacteria present, *Staphylococcus* is most likely. Whereas, chains of cocci often represent *Streptococcus* and rod-shaped bacteria are likely *Pseudomonas*.

When choosing an antibiotic to treat otitis media, select one that is known to penetrate bone; then dose at the higher end of the dosing range (**Table 1**). Because higher doses of antibiotics are needed, marbofloxacin remains the best fluoroquinolone choice in cats due to the reported risk of retinal damage when enrofloxacin is used at doses higher than 5 mg/kg Q 24 H.

Remember that cytology and culture samples from the horizontal ear canal and from the middle ear may vary significantly in the same patient. For this reason, if a culture from the middle ear is not available to provide guidance with regard to antibiotic selection, cytologic evidence demonstrating the type of infection present in the middle ear (cocci only versus mixed infection) is very important to help guide treatment recommendations.



Perforated eardrum in 10-year-old West Highland white terrier with a history of chronic otitis externa secondary to atopy.

Q. How long should antibiotic therapy be continued?

A. Antibiotic therapy should be continued for 7 to 10 days past clinical resolution. In patients with otitis media/interna, it is not uncommon to sustain uninterrupted antibiotic therapy for 6 to 12 weeks. Because it is difficult for antibiotics to reach target organisms within the middle ear, use doses at the higher end of the reference range.

Given the frequency of mixed infections and the presence of organisms with unpredictable susceptibility patterns, antibiotic selection should be based, whenever possible, on culture and sensitivity results obtained from the middle ear. This is especially important given the longer course of treatment often required, similar to a patient with osteomyelitis.

Q. Are anti-inflammatories and/or analgesics part of your therapeutic strategy?

A. Absolutely! The role of pain management in the treatment of otitis externa/media/interna is extremely undervalued and underutilized. Otitis media/interna, just like cases of osteomyelitis, can be extremely painful. Since our patients are typically stoic, their levels of pain can easily be underestimated.

There are several good choices available to clinicians for pain management; effective choices for the management of otitis media/externa are listed in *Table 2*. Advise owners to monitor for less obvious indicators of pain, such as decreased interaction, anorexia, and lethargy, in combination

with more obvious signs, such as vocalization, shying away, and avoidance.

Anti-inflammatories, such as systemic corticosteroids or nonsteroidal anti-inflammatory drugs (NSAIDs), are almost always indicated as well. *However, NSAIDs must not be used in combination with systemic corticosteroids due to the potential for side effects.*

Whenever possible, I favor the use of systemic corticosteroids over NSAIDs in patients with otitis media/interna. Corticosteroids not only decrease the intense inflammation found in middle ear disease, but also have been found to decrease the amount and viscosity of the exudate and mucus produced within the bulla. By decreasing the inflammation present, the amount of free space within the bulla and horizontal ear canals increases, allowing better access for medication and improved epithelial migration.

The 2 most commonly used corticosteroids in the treatment of otitis media/interna are listed in *Table 2*. In my experience, triamcinolone appears to be more effective in decreasing the proliferative changes associated with chronic otitis and has fewer adverse side effects (eg, excessive drinking, urination).

Q. Is there a role for topical therapy in treatment of otitis media/interna?

A. There is indeed a role for topical therapy. Usually, the clinician’s best chance for resolution is to create a treatment plan that utilizes a multimodal approach that combines topical therapy and systemic therapy with pain management.

TABLE 2 Selected Analgesic & Anti-inflammatory Drugs for Otitis Media/Interna

TYPE	DRUG	DOSAGE
Analgesic	Gabapentin	10–12 mg/kg PO Q 12–24 H
	Tramadol	2–5 mg/kg PO Q8H
Corticosteroid	Prednisone	1–2 mg/kg PO Q 24 H for 7–14 days; then taper to QOD dosing
	Triamcinolone	0.1–0.2 mg/kg PO Q 24 H for 7–14 days; then taper to QOD dosing



Acute otitis media in a 2-year-old standard poodle (post myringotomy).



Ruptured tympanum in a cocker spaniel with a history of chronic otitis externa.

It is important to remember that both topical and systemic medications carry the risk of *ototoxicity*—drug- or chemical-related damage to the inner ear that may affect hearing and balance. Therefore, it may be best to use products that can be infused into the tympanic bulla with minimal to no risk of ototoxicity; these include:

- **Antibiotics:** Enrofloxacin, ticarcillin, and ceftazidime
- **Antifungals:** Clotrimazole, miconazole, and nystatin
- **Aqueous forms of anti-inflammatories:**
Dexamethasone and fluocinolone
- **Ceruminolytics:** Cerumene (a squalene) and Tris-EDTA flush. **TVP**

References

1. Kahn CM (ed). Otitis media and interna. *The Merck Veterinary Manual*, 10 ed. Whitehouse Station, NJ: Merck & Co, 2010, pp 486 antimicrobial susceptibility of *Pseudomonas aeruginosa* in biofilm *in vitro*. *Vet Dermatol* 2014; 25(2):120-123.
2. Robson DG, Burton G, Bassett R. Correlation between topical antibiotic selection, *in vitro* bacterial antibiotic sensitivity and clinical response in 16 cases of canine otitis externa complicated by *P aeruginosa*. *Proc North Am Vet Derm Forum*, 2010.



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Lori Thompson, DVM, DACVD, owns Animal Allergy and Dermatology Center of Indiana in Indianapolis. Dr. Thompson is also an active member of the American College of Veterinary Dermatology and American Academy of Veterinary Dermatology, a consultant for VIN, and serves as the chairperson for the AVMA task force on veterinary compounding legislation. After receiving her DVM from Purdue University, Dr. Thompson practiced small animal medicine before completing a 3-year residency in veterinary dermatology.