

Otitis Externa

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*Ear
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THE FIGURES

Ear problems affect more than 20% of dogs (upward of 50% in warm, humid climates).^{1,2} In cats, this figure is almost 10%,^{1,2} with potential causes including mites, ruptured eardrums from sneezing, or nasopharyngeal polyps that allow middle-ear secretions to fill the external ear canal.

THE SIGNS

Otitis externa can result in:

- Significant ear itching and head shaking
- Self-trauma and matted hair behind the pinnae (from excessive scratching)
- Aural hematoma
- Dried or crusty exudate at the ear canal opening
- Odor
- Apparent severe pain and head shyness
- Neurologic signs (eg, facial nerve palsy, Horner syndrome, head tilt, nystagmus), suggesting a problem in the bulla.

THE 4-STEP APPROACH

1. **History & Examination:** For dogs, dermatologic history and examination for allergic skin disease should be done initially, as most ear conditions result from allergies. For cats, history of respiratory disease is important, as many cases of feline ear disease result from ascending middle-ear infection (if ear mites are not identified).
2. **Ear Cytology:** Characterizing the relative numbers and types of microorganisms, if present, helps decide the best treatment. Otic cytology identifies bacterial and/or yeast infection and ceruminous problems; neutrophils, if present, give a prognostic indicator.
3. **Ear Cleaning:** An ear canal cleansed of cellular debris, purulent material, wax, and other material aids examination and should be done with good-quality otoscopic equipment (eg, video otoscope) in a sedated or anesthetized patient. Ear cleaning also enhances medication efficacy, allowing medicine to reach inflamed, ulcerated, swollen, and infected skin. After cleaning (and drying) the ear, reexamine to find potential wax-covered growths, cerumen-gland hyperplasia, ulcerated areas, and fissures in the hyperplastic epithelium. After the horizontal ear canal is cleaned, the eardrum may be visible for evaluation.
4. **Treatment:** Treatment protocols should be based on all information gathered from history, examination, cytology, and the status of the ear canal epithelium (determined after ear cleaning). Decisions as to corticosteroids, antibiotics, yeast treatments, growth removal, and eardrum status are all factors in individualizing treatment regimens.

Step 2: Team Education Primer

Otitis Externa *at a Glance*

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Ear disease is neither easily diagnosed nor managed by clients without help from the veterinary team. High-quality care founded on evidence-based medicine hastens patient recovery and comfort and eases client concerns over a pet with chronic ear disease.

EXAMINATION

- Eardrum should be intact and translucent but may be invisible if the horizontal ear canal is swollen, stenotic, or impacted with debris.
- Ear canal skin should be pink and glistening with a smooth, angled, funnel shape; the vertical canal is wider in diameter than the horizontal canal.
 - Small-diameter canal could be caused by inflammation (edema), fibrosis, or calcification.
 - Rough surface may be a result of inflammatory/ceruminous gland hyperplasia or neoplasia.
 - Concave pinna skin may be reddened from scratching, food allergy, or atopic dermatitis.
- Hairs should be more numerous in the vertical canal than in the horizontal canal.

- Absence of hairs in an ulcerated ear canal indicates presence of enzymes (dissolving keratin), often seen in gram-negative rod infection.
- Grossly examine exudate and note accompanying odor of wax, cells, purulent material, or mucus (see **What's in the Ear?**).
- Look for parasites (eg, ear mites, ticks, chiggers).

CYTOLOGY

- A roll smear of each ear should be done on every ear case each time it is presented:
 - Placing small cotton swabs in the lower portion of the vertical ear canal through a 5-mm ear speculum avoids trauma and gives a more representative sample.
 - Roll out sample swab lengthwise onto a labeled, precleaned, frosted end slide.
 - Heat fix slide until it is warm to the touch.
 - Stain with Diff-Quik (or similar Romanowsky stain variant), rinse, and dry.

- Place a drop of microscope immersion oil on the slide and place coverslip.
- Examine under lower powers (5× or 10×) to find clusters of cells and then use 40× or 100× oil immersion lenses to examine.
 - Note nonstaining epithelial cells and neutrophils.
 - Yeasts: 5-10 *Malassezia* spp/high power field is normal; >15 suggests infection.
 - Cocci: *Staphylococcus* spp, *Streptococcus* spp, *Enterococci* spp >5/oil immersion field is abnormal.
 - Rods: *Pseudomonas* spp, *Proteus* spp, *E coli*, *Klebsiella* spp >2/oil immersion field is abnormal.
 - Negative findings may indicate response to treatment or no infectious otitis externa (early atopic dermatitis).
- A sample of ear debris taken with a cotton swab should be placed into a drop of mineral oil on a microscope slide, then coverslipped and examined under low magnification with low light to check for *Otodectes* mites or eggs and *Demodex* mites.



CLEANING

In General

- Caution: When the eardrum is not seen, ototoxic ear cleaning chemicals can enter the middle ear and inner ear. Some chemicals are proinflammatory to the mucous membrane lining the tympanic bulla, creating more purulent material and mucus.
- Warmed tap water, warmed saline, or povidone iodine diluted in water are safe to use in the ears even when the integrity of the eardrum cannot be determined.
 - 30 mL 1% povidone iodine solution/L of flush fluid (warmed tap water or normal saline); solution should look like strong tea.
- If the eardrum is intact and the ear canal is waxy, ceruminolytic cleaners can be used.

Mechanical

- Buck or Dermal curettes help remove tenacious material from the epithelium.
- Endoscopic grasping instruments help remove free hairs, insects, wax plugs, and plant material from the canal.
- Pressurized water helps loosen and flush out free material in the ear. Instruments that can be used include:

- Ear bulb syringe
- Large (60-mL) syringe with catheter attached
- Mechanical pump and suction machine (eg, Earigator, otopet-usa.com)

Chemical

- For waxy ears with an intact eardrum, use a ceruminolytic cleaner (eg, DSS and warm water).

- Allow detergent ear cleaner to emulsify the waxes and oils for 5 minutes.
- Flush and suction the ear canal until no detergent remains.
- Suction and dry the ear canal.

WHAT'S IN THE EAR?

- Dark brown exudate & ceruminous thick dry wax = normal or hormonal; may also be seen with *Otodectes* mite infestation
- Pale brown exudate & moderate wax = *Malassezia* spp yeasts likely
- Yellow exudate & mild to purulent wax = Staphylococci likely
- Green exudate & purulent hemorrhage or mucoid = Gram-negative rods (*Pseudomonas* spp, *E coli*, *Proteus* spp) likely

For cytology result handouts for your practice, visit veterinaryteambrief.com/cytology-results



Step 3: Communication Script

Hot-Button Issues

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The key to managing client expectations is to set the stage before the issues occur.

HOT-BUTTON ISSUE #1

“Why can’t I just get a refill?”

Ear infections can be the most frustrating and time-consuming health problem for clients. To worsen matters, these conditions are often chronic and/or seasonal and allergy-related, requiring ongoing treatment. Just when a client is expecting a reprieve from constantly medicating and cleaning his or her pet’s ears, signs can reappear.

The chronic nature of ear infections results in hot-button issues with clients, who can be frustrated or tired of bringing in their pet and spending on what they see as the “same problem over and over again.” As a result, many clients become upset when they cannot refill a previous prescription without bringing the pet in for an appointment. Their frustration can be taken out on a team member, such as a receptionist who explains the prescription cannot be refilled or a veterinary technician who returns the call only to inform them that they will need to make an appointment. Further, sometimes the medication does not cure, or it worked once but does not work now.

Potential Solutions

The key to managing client expectations is to set the stage *before* the issues occur—from the very first time the patient presents with an ear infection:

- Create written standards of care regarding treatment protocol for ear infections (include prescription refill policies, recheck recommendations). Get a commitment from every veterinarian to follow through on these, regardless of previous individual policies.
- *Stop confusing clients!* The practice’s veterinarians must agree on medications and cleaners to be consistent—clients become confused and concerned, and can lose confidence when one

veterinarian recommends one ear cleaner and another recommends a different one.

- The first time a patient presents with an ear infection that has the potential to recur, the client should be provided a handout that outlines expectations, potential resistance, and the need for microscopic examinations.
- Take time to explain to clients the differences between organisms that can cause an ear infection so that they recognize the importance of (multiple) cytologic examinations and understand that the medication previously prescribed may not be the best choice in the future.

HOT BUTTON ISSUE #2

“He’s completely cured, so I don’t need to bother with a recheck.”

Rechecks are one of the most critical steps in successful treatment of ear infections, so why do many practices have poor compliance with rechecks (for ear infections and in general)? Poor communication is a huge culprit, but there is also another important barrier to consider: cost. When a client has spent more than \$100 for examination, cytology, and medication, he or she is not inclined to do so again 2 weeks

REDUCED
“STICKER SHOCK”

INCREASED
VISITS

Improved care, compliance,
& client satisfaction
PLUS
greater revenue
generation

There is something to be said for educating clients on prevention, even when it comes to ear infections.

later, especially if the condition appears to have resolved. Follow-up cytology is also critical, but even if clients bring in patients for rechecks, they are not always willing to pay additional fees.

Like it or not, if the patient has recurrent infection, the client is not going to see it as a failure on his or her part to come in for a recheck, but as a failure in diagnosis and/or treatment.

Potential Solutions

- When it comes to rechecks, it's all about making compliance easier for clients.
- Schedule the recheck when the client is still at the practice (after educating him or her on the importance of a recheck)—either have the technician do so in the examination room or communicate the need to have the receptionist do so when escorting the client to the front desk.
- Don't let the “I'll check my schedule and get back to you” argument work; get it scheduled and contact the client at least 2 to 3 days before the appointment to ensure the time still works

(a great opportunity to use text reminders!). If they do not schedule an appointment, set a schedule for reminders.

- Lower your recheck fee and commit to performing more ear swabs as a result.
- Offer complimentary rechecks (raise the examination fee slightly if necessary).
- Create a package price for patients with chronic ear infections that includes examination, recheck, and 2 cytology examinations.

CLIENT LOYALTY OPPORTUNITIES

Educating clients on prevention is important, particularly when it comes to ear infections. Keeping ears clean and dry is key, yet most clients do not understand its importance.

Consider offering a complimentary ear-cleaning session to *all* clients with the purchase of an ear-cleaning product (either after a wellness visit or scheduled as a separate 15-minute appointment). The technician can use one ear to demonstrate and then coach the owner on the second ear,

discussing how often this should be done and what to look for to determine whether the pet needs veterinary attention.

Complimentary Daily Treatment

Some clients are unable to effectively medicate their pet's ears and will bring the pet in on a daily basis to have someone else do it. Offer this opportunity, no appointment necessary!

For times when technicians or veterinarians are busy and a client brings in the pet for the daily treatment, consider training receptionists; have a veterinarian or technician conduct a wet lab so other team members can better understand the viscosity of each medication, how to adjust the amount dispensed, and how to massage it into the ear canal. This is not a service that will be taken advantage of often (people generally do not want to load their pet every day to go to the veterinarian), but those who do take this opportunity will be extremely grateful for the above-and-beyond level of patient care and client service provided.

Steps 4 & 5: Team Workflow & Roles

Team in Action

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TECHNICIAN/ASSISTANT

- ✓ Escort client and patient to examination room
- ✓ Get full history and temperature/pulse/respiration, regardless if ears are the only presenting concern
- ✓ Obtain ear swab from each ear and explain purpose of cytology
- ✓ Offer educational reading while clients wait for veterinarian
- ✓ Document all conversations in medical record
- ✓ Communicate history to veterinarian
- ✓ Prepare treatment plan

VETERINARIAN

- ✓ Review history and examine patient
- ✓ Present client with treatment plan
- ✓ Once approved, instruct technician to prepare and read cytology results
- ✓ Follow ear-cleaning protocols
- ✓ Create treatment plan based on cytology results
- ✓ Set realistic expectations, educate client, and provide educational material
- ✓ Enforce importance of rechecks and ear cleaning

TECHNICIAN/ASSISTANT

- ✓ Prepare and read cytology results as instructed
- ✓ Assist in examination room
- ✓ Clean or assist veterinarian with ear cleaning
- ✓ Prepare medications as directed by veterinarian

STEP 5: Team Roles

1

RECEPTIONIST

ROLE:

Initial client point of contact & appointment scheduler

RESPONSIBILITIES:

- ✓ Schedule initial and recheck appointments (if client is new, obtain medical history from previous veterinarian *before* initial visit)
- ✓ Relay client's request for a call from veterinarian or for a refill of medication
- ✓ Recognize signs of ear disease and encourage clients to bring in pets for examination
- ✓ Be familiar with ear medications and cleansers
- ✓ Learn how to apply medications and cleansers properly

2

TECHNICIAN/ASSISTANT

ROLE:

Client educator & veterinarian's assistant

RESPONSIBILITIES:

- ✓ Obtain ear swabs and other samples
- ✓ Prepare slides
- ✓ Read cytology
- ✓ Clean and medicate ears
- ✓ Provide hands-on client demonstration of proper usage of prescriptions and products

TECHNICIAN

- ✓ Return with medications
- ✓ Demonstrate usage and review discharge instructions
- ✓ Confirm that all client questions are answered
- ✓ Schedule recheck (or escort to front and verbally communicate the date and veterinarian for recheck to receptionist)
- ✓ Ensure all necessary reminders are set up in medical record

RECEPTIONIST

- ✓ Review invoice
- ✓ Confirm client has received all medication and understands usage
- ✓ Schedule recheck

3

VETERINARIAN

ROLE:

Medical expert & client educator

RESPONSIBILITIES:

- ✓ Examine skin and ear
- ✓ Formulate therapeutic plan based on cytology results and other findings

4

PRACTICE MANAGER

ROLE:

Overseer of team education & practice policies

RESPONSIBILITIES:

- ✓ Organize at least one veterinarian meeting per year to reexamine standards of care and medications for ear infections
- ✓ After annual meeting, dedicate part of a meeting to reviewing protocols and medications with entire team
- ✓ Ensure that all veterinarians are following through with client education and standards of care
- ✓ Consider changing pricing model and creating a package of services
- ✓ Track compliance with rechecks

Step 6: Team Training Plan

Training the Team

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TIP

- Standards of care for chronic ear infections should be reviewed annually by the practice's veterinarians.

Although it is not important for every team member to understand the details of every possible ear infection or medication, they do need to recognize the reason for the protocols that are in place so that they can communicate appropriately to clients. It is beneficial, however, for everyone on the team to be familiar with the ear cleaners the practice sells and know how to manually clean a patient's ears and dispense medication.

Take advantage of educational opportunities offered by the manufacturers of the ear medications and cleaners carried in your practice; they are usually happy to conduct lunch-and-learns for the team and will often bring in a veterinarian to lead the discussion.

MEETING AGENDA

- Receive and discuss the practice's standards of care regarding ear infections (*these need to be in writing and approved by veterinarians before meeting*).

Pet Parents Want to Know!

Find a useful client handout on frequently asked questions about otitis externa at veterinaryteambrief.com/clinical-suite/otitis-externa



- Ask a veterinarian to educate the team about each product and demonstrate how they are used.
- If veterinarians had not previously presented a united front regarding how chronic ear infections are managed, express to the team their commitment to doing so from now on—*consistency is critical and improves the ability for team members to communicate effectively!*
- Review all handouts to be used with clients and ensure every team member receives a copy of each; discuss the expectation that everyone should become familiar with handout contents.

Because there is such a variety of potentially difficult client communication scenarios that can occur regarding chronic ear infections (both on the phone and in person), extra time should be devoted to role playing and developing verbal communication skills.

Step 7: Treatment Overview

Treatment of Otitis Externa

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CORTICOSTEROID

Topical

- Useful to reduce inflammation in ear canal; helps relieve discomfort
- Opens up diameter of ear canal to allow more air circulation
- Potent steroids (eg, dexamethasone, triamcinolone, fluocinolone, mometasone) to be used initially for 2–3 weeks
- A lower-potency steroid (eg, hydrocortisone) can be used for maintenance.

Systemic

- High-dose prednisone (1 mg/lb PO q24h for 2 weeks) helps reduce ear inflammation.
- Dexamethasone (0.1 mg/lb IM) helps reduce inflammation with fewer adverse effects than high-dose oral prednisone.
- Lower-dose oral corticosteroids may control atopic signs and prevent otic signs.

YEAST

- Remove waxes and free fatty acids that are substrates for *Malassezia* spp growth
- Decrease inflammation in the ear with corticosteroids to slow cerumen production
- Acidify the ear canal using acid ear cleaners; yeast do not thrive in low pH ears.

- Topical antifungals (eg, miconazole, clotrimazole, ketoconazole) can be effective.
- Systemic antifungal drugs (eg, ketoconazole, itraconazole, fluconazole) have little effect.
- *Malassezia* spp ear disease is often caused by atopy or adverse food reaction; underlying causes must be addressed.

GRAM-POSITIVE COCCI

- Includes *Staphylococcus* spp, *Streptococcus* spp, *Enterococci* spp (commonly found in waxy ears in conjunction with yeasts)
- Ear flushing using 0.15% chlorhexidine can be very helpful.
- Most topical otic antibiotics are effective against *Staphylococcus pseudintermedius*.
- Occasionally methicillin-resistant strain or *Staphylococcus schlefferi* are found.
- For streptococci, enrofloxacin is usually not effective.
- Atopy, adverse food reactions, and hypothyroidism are common underlying causes.

GRAM-NEGATIVE ROD

- Includes *Pseudomonas* spp, *Proteus* spp, *E coli*, and *Klebsiella* spp
- Enzyme liberation from gram-negative rods results in ulcerated ear canals with thin discharge of neutrophils and serum.

- Flush ears with warm liquids; avoid alcohols and detergents which often cause pain.
- Many chronic infections have multidrug-resistant organisms; bacterial culture and antibiotic sensitivity may decide treatment.
- Drug treatment includes polymyxins, semisynthetic penicillins (eg, ticarcillin), aminoglycosides (eg, neomycin, gentamycin, tobramycin), fluoroquinolones, and ceftazadime.
- Rotating antibiotic types q2wk may prevent resistance.^{3,4}
- TrisEDTA q8–12h helps make bacterial cell membranes more porous to allow a higher concentration of antibiotic to enter the cell.
 - Allow it to remain in the ear for ≥5 minutes; follow with antibiotic instillation.
- Antibiotic-moistened ear wicks help keep the antibiotic in contact with the infected ear canal skin longer than drops; replace wicks every week.
- Use ear packings of topical drugs cautiously; they maintain cytopathic enzymes in contact with the ear canal longer.
 - Use thick, occlusive type of ear packings (eg, lanolin-based products).

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