

Otitis: The First Step in Treatment

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It is important to be aware of all the different treatment options that are available and their indications table 1.

Table 1

Treatment Class	Route Administered	Indication
Analgesics/anesthetics	Systemic	Some cases for examination Chronic proliferative otitis externa /media Deep cleaning Intralesional therapy
	Topical	Ear examine and some cleaning procedures
Antibiotic (AB)	Topical	Bacterial infection ear canal
	Systemic	Bacterial otitis media or proliferative changes over 50% lumen, topical reactions
Antifungal (AF)	Topical	Yeast overgrowth or when present with inflammatory cells and no bacteria
	Systemic	Otitis media with yeast present from middle ear
Antiseptic (AS)	Topical	With or following cleaning For resistant bacterial infections Control of microbial overgrowth
Cerumenolytics	Topical	Waxy greasy ceruminous exudates in ear canal
Cleansers	Topical	Control of mild dirty, waxy ears odor microbial overgrowth
Glucocorticoids	Topical	Allergy not controlled by cleaning alone Otitis externa Pinnal erythema/pruritus
	Systemic	Proliferative otitis greater than 50% of lumen, when exudation not stopped with topical therapy
	Intralesional	When cleaning, topical and oral systemic therapy does not improve proliferative otitis enough
Hypoallergenic diets	Oral	Control of adverse food reactions
Parasiticides	Systemic	Otodectes in adult animals
	Topical	Otodectes in puppies and kittens

Successful treatment outcomes will require that a complete treatment plans is developed the client adheres to the treatment plan. Therefore one of the most important jobs of the veterinarian treating a case of otitis externa is getting good client compliance. This is achieved with client education about the treatment plan and gaining the clients confidence it is a good plan that they can accomplish. The client needs to agree with both what the problem is and the appropriate solutions. It is important that the plan includes the appropriate follow up and that this is explained.

The first step in this process is developing the recheck plans and getting the client to understand their importance and follow through. The client needs to understand clinically the odor, head shaking and discomfort may be gone, but the ear may still be building up debris and not staying cleaned, have proliferative changes, or the tympanum may not have returned. These changes may

eventually lead to another infection or acute flare up of otitis. The return to a healthy ear canal can only be determined with otoscopic and cytologic examination of the ear canal. Follow up examinations are also important to determine if cleaning is being done effectively and when normal self-cleaning returns. Scheduling the follow up examination is critical and has to be done differently to answer the preceding questions. To determine if home cleaning is effective then the examination should be done within 24 hours of the cleaning procedure. To determine if the interval is too long between cleanings or that self cleaning may have returned the examination needs to occur when the ear has not been cleaned for at least the interval between current cleanings or longer. Clients need to understand there are different types of follow up for chronic ear cases and that multiple visits will be required.

The number one rule of topical therapy is the active ingredient(s) must reach the site to be treated. This means if only one treatment was allowed to manage ear cases then it would definitely be cleaning, as no single topical product is as effective. Cleaning techniques that are most effective occur in the sedated or anesthetized dog and generally that is the preferred initial therapy when there is a lot of proliferation, exudate or otitis media. There are cases where initial therapy will make this more effective or unnecessary but in some cases there will be a poor response without the in clinic cleaning. Deep ear cleaning in clinic also allows for the false middle ear pockets or middle ear to be cleaned. *Tube flushing* may be an effective non-surgical method for cleaning these deeper sites. It is also the least expensive method. A variety of tubes such as polypropylene tomcat catheters have been recommended for use but my preference is a soft rubber feeding tube (Sovereign® feeding tube and urethral catheter) of several sizes (3.5, 5.0, 8.0 and 10.0 French) though the 5 and 8 are my most commonly used sizes. These may be prepared for use then kept in cold sterilization solutions. They are cut short (5-7 inches in length and the ends are trimmed so that the tube will fit over a syringe hub. A 6-12cc syringe is attached. Some clinicians prefer to use a three-way valve so that fluids can be run through one port and suction from a separate port. Which action (flush or suction) is being done is determined by the position of the three-way valve. Water or saline may be utilized as the flushing solution. It should be at roughly body temperature. Saline has the advantage of causing less swelling if repetitive flushing is performed. Usually multiple flushes are required and a bowl of flushing solution should be available. Cleansers and antiseptics may be used in the flushing solution though the author rarely does this and utilizes these products only as the final rinse.

The feeding tube is passed down through a surgical otoscope head and attached cone or through a video otoscope. Under visualization the tube is passed down to the level of the middle ear. If possible the tip is then passed ventrally towards the bottom of the tympanic bulla. The objective is to place the tip of the tube at the most ventral aspect so that the exudate and organisms are flushed directly out towards the external ear canal. In other cases the tube may be placed within the exudate, which may be inspissated, and aids in dislodging and removing it. The passing of the tube into the dorsal or middle aspect of the middle ear has a greater risk of damaging the vestibular (oval) or cochlear (round window) that lies within the promontorium. Actual placement in the ventral bulla is difficult due to the bony ridge that separated the ventral from middle parts of the middle ear cavity. Soft tubes are more likely to reach this location due to the ability for the tip to bend. Therefore attempts to get the tube below the ridge should be made and is easier when using 5 French or smaller tubes. Trying to bounce the tube off the dorsal aspect of the external acoustic meatus just prior to entering the area of the dilated or ruptured tympanum may help in achieving this. Once the tip is placed in an appropriate location the flushing solution is gently infused into the ear and this will fill the otoscopic cone and any debris is seen floating in the solution. The flush solution is then aspirated out and it along with the aspirated debris is discarded. Flushing by infusing fluid and aspirating is repetitively done until no debris is seen floating up in the solution. Ear cleaning units that combine flushing and suction are very helpful though not required for tube flushing.

Vestibular syndrome or deafness may occur after ear flushing, even when no ototoxic drugs are utilized. These side effects are uncommon. In one study of 44 cases that had the middle ear flushed no side effects were reported[31]. Another study of 105 otitis ears flushed none had hearing loss and some even improved following cleaning[32].

Home ear cleaning may also be essential, particularly in cases where epithelial migration is not occurring. Generally I do not have clients begin to clean until the dogs ears are not painful and then usually only once weekly. Most often I have clients do an ear wash by filling the ear canal to the opening of the external orifice with a mild antiseptic cleanser. The clients massage the ear both vertical and horizontal ear canal for a few minutes if possible. To effectively massage the annular cartilage the client must be educated about the location and need for deep digital palpation. Following several minutes of massage the material is allowed to be shaken out and then the external orifice and concave pinna is wiped clean with tissue or cotton balls. If they get more than a little debris they should fill and rinse the ear again and repeat until only a small amount of debris is obtained. Do not allow excessive use of cotton tipped applicators down the ear canal as these commonly push debris deeper into the ear canal. Antiseptics are sometimes utilized as an ear rinse daily for some infected ears or following the home cleaning. My favorites contain acetic or other acids or tris edta with 0.15% chlorhexidine which in the US is usually labeled as a flush not ear product.

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