The proactive, preventative maintenance approach to managing otitis externa in dogs

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Otitis externa is common in dogs and is often a recurrent problem. Recurrent otitis with inflammation and secondary infections is painful, leads to aversion and chronic acquired inflammatory changes to the ears. Inflammatory changes make flares of otitis more frequent and difficult to manage and can also drive a progression from otitis with Malassezia and/or gram +ve bacterial infection to gram -ve bacterial infections, especially Pseudomonas spp. Malassezia and bacterial species associated with otitis can produce biofilms which facilitate adherence, promote complex and self-sustaining microbial populations and inhibit antimicrobial activity. To add to the complexity, repeated ineffective treatment courses select for antimicrobial resistance (AMR).

Eventually, irreversible changes and/or unresponsive infections occur which require surgical intervention, most commonly total ear canal ablation and bulla osteotomy (TECA-BO). Most end-stage ear disease and ear canal surgery is avoidable if recurrent otitis is correctly diagnosed and managed to prevent the progression to irreversible chronic changes.

Successful management requires a proactive and preventative approach. It is critical to understand that all recurrent ear infections in dogs are secondary – there is always an underlying primary factor, or factors. Recurrent infections occur because the underlying factors are not managed well enough. Treatment of the infection gives short-term relief but does not prevent relapse. Recurrence does not mean that the treatment failed, but it does mean that the underlying triggers for the otitis and ear infections were not managed adequately. Repeating treatment with the same or a different product will only give short-term relief and will not alter the pattern of relapsing inflammation and infection.

To achieve a good long-term outcome and prevent relapse it is essential that the underlying factors in each case are diagnosed and managed. The primary, secondary, predisposing, and perpetuating system (PSPP) helps with this approach. This means that the primary condition must be diagnosed and managed, the secondary infection treated, predisposing risks identified and corrected, and the perpetuating factors reversed.

Primary factors in otitis induce inflammation of the ear and, therefore, must be capable of causing inflammation in otherwise healthy skin, or less commonly, significant immune suppression. There is a wide range of potential primary triggers of otitis externa. A careful and thorough review of the signalment, history, and clinical signs will narrow the differential diagnoses and allow a cost and time efficient plan for the diagnostic steps and treatment.

Predisposing factors rarely (if ever) trigger otitis by themselves, but they make the otitis more likely to occur or more likely to progress in an animal with a primary condition. These are most commonly anatomical/ conformational or less commonly lifestyle or management factors.

Perpetuating factors are chronic acquired pathological changes within the ear canals that prevent resolution. Early changes include nodular epidermal and glandular hyperplasia giving the ear canals an irregular

"cobblestone" appearance. Later changes include further epidermal and dermal hyperplasia and thickening, ear canal stenosis and occlusion, fibrosis, and mineralisation. This can also result in tympanic membrane rupture, otitis media, and cholesteatoma formation. It is essential that early chronic acquired pathological changes are recognised and treated. This gives the best chance of a good long-term outcome. More severe changes become progressively harder to treat increasing the complexity, complications, and cost.

There are two distinct phases in the approach to the management of otitis externa – Reactive therapy and Proactive therapy. The goal of the initial reactive phase is the treatment of existing acute and/or chronic inflammatory changes and infection to achieve clinical remission. The proactive phase is preventative long-term therapy to maintain remission and prevent relapses.

Treatment should be appropriate to each dog, considering the type of otitis present (erythroceruminous or suppurative), the microorganisms present, and the extent and severity of the inflammation. Owner and patient compliance also need to be considered. In general, treatment will typically involve a combination of ear cleaning, topical antimicrobial therapy, and topical or systemic glucocorticoids. Understanding the triggers for recurrent otitis in dogs will help with designing effective management plans that will make a significant difference to the quality of life of affected dogs and their owners.

The normal tympanic membrane plays a critical role in the expulsion of cerumen from the normal external ear canal. Migration of epithelium from the pars tensa of the tympanic membrane toward the annular region of the ear drum to the epithelium of the horizontal ear canal provides a clearance mechanism in the external ear canal. Cerumen is cleared from the ear canal along with the migrating epithelium. When the rate slows to the point of allowing accumulation of debris, the term *failure of epithelial migration* applies. This can lead to accumulation of debris in the ear canal, and cerumenolytic products and ear flushes play an important role in helping to remove this debris.

As well as eliminating infection, the aim of the reactive phase of treatment is to reverse the acquired pathological changes and restore the normal ear canal structure and function. A good outcome cannot be achieved without this. This requires broad-spectrum anti-inflammatory treatment, which in effect means topical or systemic glucocorticoids.

For early changes such as ceruminous hyperplasia with stenosis when the ear canals are still pliable and mobile then use either a topical steroid e.g. hydrocortisone aceponate (Cortavance®) or mometasone furoate (Elocon lotion) daily to remission and then taper to once weekly for maintenance.

When there is mild to moderate ceruminous hyperplasia with stenosis and loss of pliability then oral prednisone must also be given to remission before tapering for two to four weeks. This is likely to result in steroid associated adverse effects, but these effects resolve once the prednisone is stopped. Dose prednisone at 0.5–1.0mg/kg q12-24h until resolution of pathological changes and then taper the dose over 2-4 weeks.

Once in remission, long-term therapy is needed to maintain the improvement and prevent relapse, alongside addressing the primary cause. This is where it helps to be thinking about what we can do to prevent the problem from returning, which is inevitable otherwise.

The self-cleaning mechanism of the ear has often been compromised, and at-home ear cleaning is therefore essential in the long- term management to prevent relapse with accumulation of debris. Using the correct ear cleaner and technique is important to avoid compromising the clinical outcome. The frequency of cleaning is usually every two to four weeks.

Application of a topical steroid as part of the proactive therapy routine to help reduce pruritus and prevent inflammation is also important. For example, 0.5-1ml of mometasone lotion or hydrocortisone acepionate (Cortavance®) to the ear once to twice weekly. This is well tolerated and rarely causes steroid related adverse effects.

Scheduling recheck appointments during this proactive preventative maintenance phase is critical to ensure that at home cleaning is being done correctly and is effectively keeping the canals clean and dry. Rechecks

initially may need to be every four weeks and can then be tapered out further once the ear is remaining clean and comfortable.

A better understanding of the triggers for recurrent otitis in dogs will help clinicians plan effective management regimens that will make a significant difference to the quality of life of their patients and their owners. Veterinarians also have a responsibility and an important role in antimicrobial stewardship. Diagnosis and management of the underlying factors and careful decision making when using antimicrobial medications, addressing inflammation and using topicals in preference wherever possible, will help to reduce the need for repeated treatments.

References

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