Ear wicks in veterinary medicine: Part 2

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This is the second article in a series of two discussing the use of ear wicks in veterinary medicine. Ear wicks are small surgical packs made of polyvinyl alcohol (PVA) that have been used in human medicine for about 50 years to treat a variety of aural conditions.

The principal uses of ear wicks in veterinary medicine are as:

- treatment of bacterial/yeast otitis externa
- post-operative packing after non-ablative surgery
- reduction of hyperplasia/stenosis of the external ear canal

The reader is referred back to the first article in this series (UKVet Vol 13 No 7) for use of ear wicks in the therapy of bacterial/yeast otitis externa and otitis media in dogs. This article will deal in more detail with the use of wicks as post-operative packing after minor surgical procedures in the dog and cat and in the therapy of hyperplasia of the external ear canal.

POST-OPERATIVE PACKING AFTER NON-ABLATIVE SURGERY

Papillomas, basal cell tumours and ceruminous gland adenomas are the most common benign tumours found within the ear canal of dogs; in cats, ceruminous gland adenomas predominate. Carcinomas, adenocarcinomas and squamous cell carcinomas are the most frequently identified malignancies in both dog and cat (London, 1996). These neoplasms tend to be aggressive. The treatment of choice for these lesions is radical surgical intervention; dependent on the extent of the lesion this may be lateral wall resection or total ear canal ablation. **Wicks are not indicated in these situations**. In man wicks are used in the management of a range of surgical procedures (Canon, 1985), which can be applied to dogs, especially the management of benign hyperplastic lesions such as aural polyps.

Aural polyps in dogs and cats

In the cat the majority of polyps are of nasopharyngeal origin and usually originate from the middle ear or nasopharynx (Lane 1981). In these cases ear wicks serve no useful purpose post-operatively. The author will generally remove such polyps by traction under video-otoscopic observation from the middle ear and packing is rarely necessary.

The dog however is much more susceptible to the formation of polyps within the external ear canal (Fig. 1). The origin of these is from the epithelium lining of the canal; lesions tend to be hyperplastic rather than neoplastic, although the author would recommend all lesions are submitted for histopathology regardless of their benign appearance. Although lateral wall resection or even total ear canal ablation can be employed to remove lesions the author favours minimally invasive removal by CO_2 laser. Laser surgery has the advantage of minimising haemorrhage in what is otherwise a very vascular area. Within the confines of a general practice providing the polyp can be visualised adequately, it can be 'nibbled off' using a gentle grasping and traction technique with long-handled crocodile forceps (Fig. 2). This will inevitably lead to considerable haemorrhage, which quickly fills the whole ear canal with blood and makes working impossible. After the polyps have been removed, ear wicks can be positioned in the ear and soaked in adrenalin to control haemorrhage. Their expansion within the canal applies pressure in addition to the haemostatic effects of the adrenalin. The soaked wick can be left in place during the surgical procedure until adequate control of bleeding is achieved. Post-operatively, either after traction removal or laser surgery, a wick can be placed in the canal and soaked in soluble glucocorticoids, usually dexamethasone injectable solution (2 mg/ml) and left in place for seven days leading up to recheck (Fig. 3) and subsequent removal. This keeps the canal open post-operatively to prevent adhesions and provides localised pain relief.

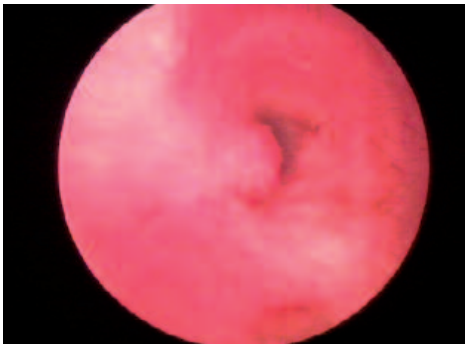

Fig. 1: *Dog's ear containing an inflammatory polyp.*

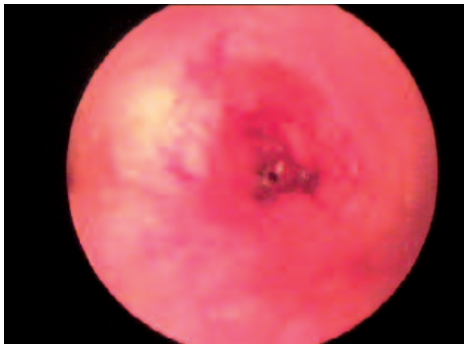

Fig. 2: *The same dog as in Fig. 1 after removal of the polyp by traction.*

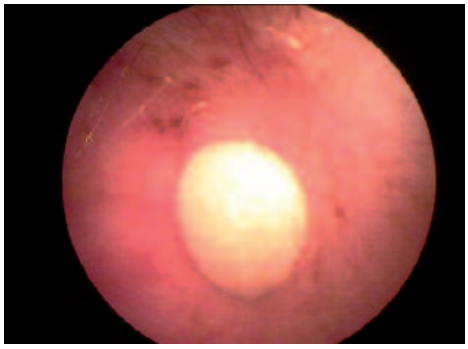

Fig. 3: *The same dog as Fig. 1 but after the wick has been in place for seven days.*

A similar technique can be used to biopsy lesions which are considered too large for removal by traction prior to surgery or to assess suitability for referral for laser surgery.

REDUCTION OF HYPERPLASIA AND STENOSIS OF THE EAR CANAL

The epidermis of the external ear canal responds to injury in a defined manner. Initially the skin becomes thicker and hyperplastic which has the effect of narrowing the lumen (Fernado, 1966). At this stage changes are reversible with anti-inflammatory therapy. As the inflammatory infiltrate accumulates in the dermis, fibrosis of the canal occurs which becomes irreversible. Glandular tissue also undergoes proliferation. Hyperplastic change occurs in the sebaceous glands and their ducts in acute disease and, in addition, in the ceruminous glands more chronically (Van der Gaag, 1986). Once the lumen of the canal becomes narrow and glandular secretions increase, the microclimate inside the ear supports increased microbial growth, which is one of the most important perpetuating causes of otitis externa. Dealing with infection is therefore important to achieve resolution of the disease but reversing the hyperplasic change is equally as important if recurrence of disease is to be avoided.

Systemic glucocorticoid therapy can be used to reduce hyperplastic change in the walls of the canal and also to decrease glandular secretions, as can topical treatment using potent steroids. The author will generally use both topical and systemic medication, unless contraindicated, to maximize the response. Administration of drops can be difficult in a narrow ear canal and thus the insertion of a wick, which can subsequently be expanded using a steroid soak, is useful. Similar techniques have been used in humans with ear canal stenosis (Miller, 1978). Adequate cleaning of such hyperplastic ear canals can be difficult and often wicks are inserted into canals which still contain organic debris. It is thus important that the animals are carefully monitored and wicks are not kept in place for more than seven days if possible. The dog should be anaesthetized and the ear flushed as thoroughly as possible with a good ceruminolytic cleaner before the wick is inserted. As wide a sized auriscope head as possible should be gently slid into the canal and the unsoaked wick can be gently inserted via the auriscope head to the narrowest part of the canal. Approximately 2 ml of the glucocorticoid solution (dexamethasone 2 mg/ml) can then be dribbled into the ear until the wick is completely soaked (Fig. 4). The wick should then be left for a few minutes before being rechecked, when a further small amount of fluid (0.5 ml) can be applied if necessary. The wick can be considered adequately soaked when a small amount of fluid is seen, pooled on the top of the wick.

Wicks may be left in place for up to a week and where possible additional steroid solution may be added at four days to keep the wick hydrated (Fig. 5). The author will generally use systemic anti-inflammatory doses of steroids (prednisolone 1 mg/kg daily) during the seven-day period. Where improvement is seen the procedure may be repeated for a second seven-day period. After two weeks the author would generally decrease prednisolone to an alternate day regime and may also start to use topical steroid drops as the canal opens up with wick placement and steroid therapy.

Fig. 4: *Ear canal after removal of the wick.*

Fig. 5: *Steroid soaked wick in hyperplastic horizontal canal of the ear of a dog after unsuccessful surgery to remove the lateral wall of the canal.*

Fig. 6: *Same canal as in Fig. 5 after removal of steroid soaked wick after seven days.*

NOTE

Ear Wicks are available through Veterinary Wholesalers and are made by DermapetUK.

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