

Surgical Treatment for Chronic Otitis Externa: Lateral Ear Resection

by

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SUMMARY

It is not uncommon to treat a chronic otitis externa that won't respond to the standard medical therapy. The purpose of this paper is to review the indications for the surgical correction of chronic otitis externa and also the surgical procedure.

DISCUSSION

Otitis externa is most frequently seen in dogs that have pendulous ears, especially if there is long hair on the ears,⁹ or if there is hair that grows in the vertical canal. A major factor in otitis externa is often moisture that collects in the ear canal because of a lack of ventilation. Otitis externa is more commonly seen during the summer months.

There are many primary causes for otitis externa. Often it starts with inflammation caused by foreign bodies or ear mites and ticks. Foreign bodies are probably the most common cause of inflammation and include weed awns, dirt and matted hair. As the cerumen, shed epithelium cells, and hair collect in the canal the ventilation is inhibited and the moist material becomes an excellent media for bacterial and mycotic growth. *Pityrosporum* (pachydermatis) is the most frequently isolated organism from ears. It is isolated from 60% of the ears with otitis and 37% of the healthy ears cultured.⁹ *Staphylococcus* and *Pseudomonas* are also frequently isolated from otitic ears. As the inflammation increases the dog will exhibit the clinical signs which the owner notices; scratching the ears, pawing and rubbing the ears, shaking the head and a foul odor.

When a dog with a case of otitis externa is

first brought to a veterinarian, medical treatment is the first line of defense. The most important aspect of medical treatment is determining the cause, removing it and preventing it from reoccurring. As was mentioned before, usually foreign bodies are the initial irritant.

In severe or chronic cases of otitis externa the dog may need to be anesthetized (and intubated) before you can effectively treat the ear(s). With a forceps or tweezers remove the hair and any foreign material from the ear canal. If a culture is needed take the sample at this time, before the treatment is continued. A Water Pic^a filled with a cerumenolytic agent, or an antiseptic agent like Nolvasan^b is excellent for flushing the ear canals. Always be sure to intubate the dog in case the tympanic membrane has been ruptured, otherwise the liquid will have a direct pathway to the lungs. After flushing, dry the head and ear(s) with a towel. If the dog has flopped ears, it is a good idea to tape them over the head to insure good ventilation. Topical antibiotic treatment with a substance that the cultured organism is sensitive to is sufficient in most cases.

For long standing or recurrent otitis that doesn't seem to respond to the flushing and antibiotic therapy, autogenous bacterins have been tried.⁴ The success is variable, probably depending upon if there is an underlying cause of the bacterial infection and if that cause has been removed. If excessive hyperplasia (papillomatoma) is present, an antibiotic-DMSO (dimethyl sulfoxide) preparation may be used to increase antibiotic absorption.

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^a Water Pic, Teledyne Water Pic, Ft. Collins, CO.

^b Nolvasan, Fort Dodge Labs Inc., Fort Dodge, IA.

Lateral ear resection is indicated when the medical treatments either fail due to the lack of ventilation of the canals, or if it is believed that topical treatment would be more effective if the horizontal canal could be reached directly. Whenever there is excessive hyperplasia of the external canal, ventilation and drainage of the deeper canal is impaired. Resection of the ear canal may also be indicated in otitis media when there is a hyperplastic external ear canal that prevents normal drainage. A lateral ear resection should not be considered during a case of acute otitis unless there is no other choice.

Many different procedures have been described for lateral ear resections. In this paper a modified Zepp's method is described.

1. The entire ear and side of the face is clipped and scrubbed, then draped for surgery.

2. A sterile cotton-tipped applicator is placed in the vertical canal down to the horizontal canal.

3. A second sterile cotton-tipped applicator is laid on top of the first which indicates the length and direction of the vertical canal.

4. The skin is incised around the applicator with the beginning of the vertical incisions on either side of the tragus. The incision should extend about $\frac{3}{4}$ of an inch beyond the level of the horizontal canal. This flap of skin is freed with blunt dissection and reflected toward the ear pinna.

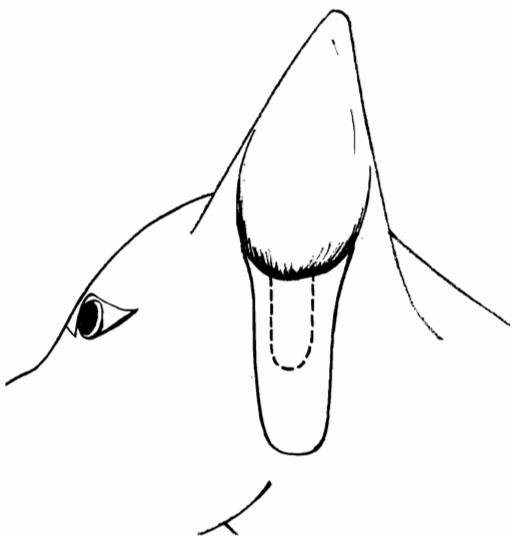


Fig. 1: Line showing skin incision with the vertical canal in dotted lines.

5. The subcutaneous tissue overlying the vertical ear canal is dissected free from the canal. The only structures that might be in the way are the parotid salivary gland, facial nerve and the superficial temporal vein. If any of these are in the way, isolate the structure and reflect it out of the way.

6. With a scissors cut the vertical canal along the cranial and caudal border down to the level of the horizontal canal. At the level of the horizontal canal, push a straight mosquito hemostat between the cartilage of the vertical canal and the lining of the canal. On the outside of the canal cut through the cartilage down onto the hemostat (the hemostat is to protect the lining of the ear canal). By cutting this cartilage the tendency for the flap to "pop up" has been minimized. This procedure is especially helpful in chronic cases whereby the flap has partially ossified.

7. Pull the flap of cartilage ventrally until the new acoustic opening is directed in a slightly ventral direction. Cut off the excess flap and suture the flap to the lower skin edge with any nonabsorbable, nonreactive suture material. This ventral flap provides a drainboard for any exudate and also prevents hair growth around the new acoustic orifice that would inhibit ventilation.

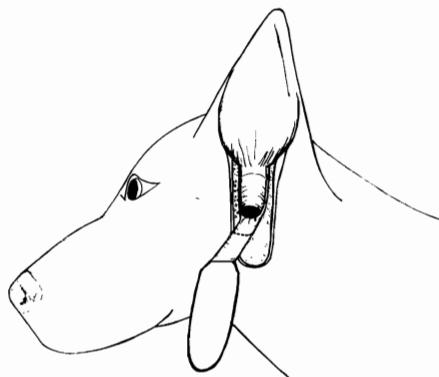


Fig. 2: Skin and cartilage incised, dotted line marks cut off point of excess cartilage.

8. Suture the skin edges to the respective side of the vertical canal. The cartilage of the canal must be included in the suture because the epithelial lining of the canal is not strong enough to hold a suture by itself. The sutures must be carefully placed to oppose the skin edge to the cartilage at the junction of the horizontal canal in order to insure that excess

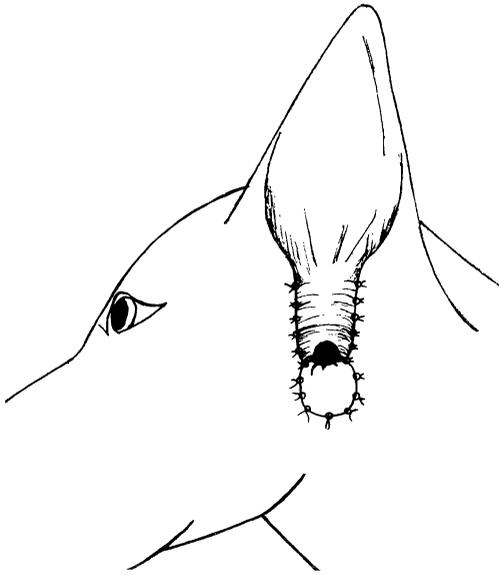


Fig. 3: Final sutured skin margins.

granulation tissue won't form and obstruct the new acoustic orifice.

9. If there happens to be excessive hyperplasia of the horizontal canal, some of the tissue may be removed via liquid nitrogen applied to a cotton applicator.

This is the modified Zepp resection. Many other authors have described other techniques for lateral ear resections, but some of these lead to less desirable results because the opening to the horizontal canal may become blocked with hair or granulation tissue. The ventral flap of cartilage formed in the Zepp resection prevents the granulating tissue and contraction of the wound from closing the auditory meatus. No hair will grow on the cartilage, therefore ventilation to the horizontal canal is not impaired and the ear remains cleaner. Using Zepp's method complete recovery occurred in 49.5% of 281 cases, 15.6% showed some improvement, and 34.9% had little or no improvement.¹¹

In 1958, Steward described a technique for the complete removal (ablation) of both the vertical and horizontal auditory canal in dogs which were refractory either to treatment of otitis externa or had a neoplasm of the canal.¹⁰ The tympanic membrane is left intact and therefore hearing is lessened but not destroyed. This technique should be used with discretion since, if otitis media occurs the Eustachian tube may not provide adequate drainage resulting in a septic lesion at the site of the former canal. In some cases such as

neoplasia, the vertical canal may be completely removed leaving the horizontal canal intact. This procedure works nicely as a portion of the lateral wall of the vertical canal can still be used as a drainboard as in the Zepp's procedure.

It is important to prevent the dog from scratching or rubbing its ears after surgery. The post operative treatment depends upon the patient. If the dog is tolerant of his ears, then daily cleaning may be all that is necessary. If the dog wants to shake his head or scratch the ears, a combination of a head wrap, mild tranquilization and an Elizabethan collar may be used. Most of the stitches can be removed in 10-14 days, but the stitches holding down the vertical flap should stay in a week longer. If any of the stitches are pulled free before the edge is healed, the defect can be left to heal by second intention unless the cartilage flap has been pulled free. If the flap is loosened then it should be resutured. Systemic and local antibiotics (without steroids) may be used if needed.

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