

LATERAL EAR CANAL RESECTION FORMANAGEMENT OF CHRONIC OTITIS EXTERNA IN CANINE

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[Received: 31.01.2023; Accepted: 23.05.2023]

{DOI 10.29005/IJCP.2023.15.1.77-80}

A eight-year-old male German Shepherd dog was presented to Referral Veterinary Polyclinic (RVP) ICAR-IVRI, with the history of intense pruritis and purulent secretions from the left ear since a month. History of the pet revealed the condition was non- responsive to medicinal therapy. Physical examination of left ear revealed purulent foul-smelling serosanguinous discharge. Otoscopic examination revealed stenosis of left horizontal ear canal and animal was evincing pain on palpation Based on physical, clinical and otoscopic examination, the condition was diagnosed to be chronic otitis externa. Surgical intervention through lateral ear canal resection was performed to improve ventilation of the external ear canal and provide access and drainage of the horizontal canal. The purpose of the procedure is to alter the microenvironment by improving the drainage and allowing for better aeration in the horizontal canal, along with post-operative antibiotic, analgesics and antihistamines administered parenterally for seven days, with topical ear cleanser and antibiotic application and also advised for regular wound dressing.

Keywords: Zepp's operation, Otitis externa, Lateral ear canal resection, Otoscope.

Chronic otitis externa is defined as medically non-responsive or recurrent otitis externa, end-stage otitis externa is defined as chronic otitis externa with marked stenosis or calcification of the horizontal ear canal, as determined by otoscopic examination and skull radiography. Otitis externa in dogs is common in small animal practice having prevalence up to 20% and between 50% and 89% of affected dogs have concurrent otitis media (Mahesh *et al.*, 2021). This condition is not breed specific but dogs with long and pendulous ears such as Basset Hounds, Cocker Spaniels and those which have hairy ear canal (e.g., Poodles) are at higher risk (Lehner *et al.*, 2010). The causes of otitis externa are mainly divided into primary, secondary causes with predisposing and perpetuating factors (Doyle *et al.*, 2004).

Surgical treatment has been an important component of the management of chronic otitis externa. The common procedures used (Doyle *et al.*, 2004) are lateral ear canal resection (LECR), vertical ear canal ablation (VECA), and total ear canal ablation with lateral bulla osteotomy (TECA/LBO). An accurate assessment of the disease's severity in the external ear canal and tympanic bulla is required to choose the best

course of action in a given situation (Mahesh *et al.*, 2021) The present study evaluates the surgical treatment of chronic otitis externa in dogs in terms of indications, clinical and surgical management to facilitate the horizontal canal access and improve ventilation of the external ear canal, the lateral ear canal resection technique was performed (Bond *et al.*, 2010).

Materials and Methods

Eight-year-old male German Shepherd dog was presented to Referral Veterinary Polyclinic (RVP) ICAR-IVRI. The dog presented with the history of intense pruritis and purulent with serosanguinous secretions from left ear since a month and non- responsive to medicinal therapy. Haematological examination revealed neutrophilia with Lymphocytosis (35.8×10^3), haemoglobin (11 g/dl), platelets (298×10^3), red blood cell ($5.88 \times$ million/ mm^3), HCT (35.8%) and serum biochemical examination revealed creatinine (0.9mg/dl), ALT (24.0 U/L). Skull radiography views included dorso-ventral, lateral oblique and rostro-caudal was done to determine any changes and found to be stenosed horizontal ear canal and tympanic bulla.



Fig.2. Dorso-ventral view revealed narrowing of horizontal ear canal

Treatment

The two surgical procedures to be considered are the lateral wall resection and vertical canal ablation, both procedures are performed to provide access to the horizontal ear canal. In present case Lateral Wall Resection was carried out, and the surgical site was draped-in (Fig.2.). It is easier to do effective surgical manipulation when the entire pinna is in the surgical field, A straight hemostat was put into the vertical segment of the canal to locate the point of angle between horizontal and vertical canals converge. An "V" -shaped skin flap is made just below the junction of the vertical and horizontal canal (Fig.3.). This flap is left attached dorsally, allowing exposure of the lateral cartilaginous wall, the annular cartilage. Using the skin flap or tubercle of the tragus for traction, the lateral cartilage is incised with two parallel cuts starting at the tragal incisures and directed toward the edges of the entrance to the horizontal ear canal. It is important that the opening of the horizontal canal is not occluded or distorted by the fold of the drainboard. The cartilaginous flap is then sutured to the original skin incision using 3-0 nylon or polyamide suture material (Fig.4.). Ear canal epithelium was opposed to skin along the cut edges of the ear canal. This procedure involves removal of the lateral wall

of the vertical ear canal, causing the horizontal canal to open directly to the environment. The purpose of this procedure is to alter the microenvironment by improving the drainage and allowing for better aeration in the horizontal canal. Postoperative care consists of minimizing self trauma, the surgical site was bandaged and also advised for Elizabeth collars gentle removal of exudates and debris, and re-examination by the surgeon no 14 days postoperatively. Postoperative antibiotics Morbofloxacin 5 mg/Kg body weight, Analgesics Meloxicam 0.2mg/Kg body weight, Antihistamines Chlorpheniramine malate with topical application of Epitotic solution (Salicylic acid) with Pomisol ear drops (ofloxacin, clotrimazole, betamethasone and lignocaine) were applied topically.

Results and Discussion

The diagnostic evaluations performed using cytological examination, bacterial culture with sensitivity testing also recommended by Angus *et al.*, 2004. The results of the bacterial cultures and cytological examination was done by collecting ear swab and impression smear, the organisms retrieved were *Staphylococcus aureus*. The present case was appropriate patient for the Zepp procedure, as present case had minimal

hyperplasia of the ear canals. Uneventful recovery of animal was reported after 15 days



Fig.2. Left ear with purulent discharge



Fig.5. Sutured edges of incised wound with simple interrupted suture pattern using Polyamide size 3-0

Conclusions

Otitis externa is a common condition that, despite being easy to diagnose, needs to be correctly identified at an early stage with appropriate medical care for its causes. If the situation is unresponsive to medical treatment, surgery is recommended to address the recurrent causes of otitis externa. A precise evaluation of the ear canal and tympanic bulla utilising otoscopy, microbiological assessment, cytological investigation, and radiography is crucial for choosing the right surgical treatment for a given case. In certain cases where irreversible changes are confined to the vertical ear canal, then vertical ear canal ablation (VECA) is indicated. If the ear canal appears to be normal, then lateral ear canal resection

Indian Journal of Canine Practice 79
ISSN: 2277-6729 e-ISSN: 2349-4174

of post-operation.



Fig. 3. Triangular skin flap and exposing lateral ear canal



(LECR) is indicated. The purpose of this procedure is to alter the microenvironment by improving the drainage and allowing for better aeration in the horizontal canal. The results are affected by decrease in temperature, moisture, and humidity, presumably creating an environment that is less suitable for bacterial growth. Once there are irreversible changes within the horizontal ear canal, with otitis media, total ear canal ablation and lateral bulla osteotomy (TECA/LBO) is the treatment of choice. This operation is difficult. However, in this case series, the majority of instances had outstanding results. The organisms most commonly retrieved were *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Malassezia pachydermatis*, and *Escherichia coli* in

Volume 15 Issue 1, June, 2023
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present case showed positive for *Staphylococcus aureus*, which can be determined by microbiological examination helps in selection of antibiotics for further treatment.

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