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Video otoscopic outcomes and cytological evaluation of 20 cases of canine aural haematoma

Raksha[1], Ramesh Tiwary[2†], Kaushal Kumar[3], Anil Kumar[4], Rajesh Kumar[2], Puja Kumari Bhagat[5]and Satyendra Singh[1]

Bihar Animal Sciences University, Patna- 800014 (Bihar)

[1]MVSc Scholar, [2]Associate Professor, Department of Veterinary Surgery and Radiology; [3]Professor, [5]MVSc Scholar, Department of Veterinary Pathology; [4]Associate Professor, Department of Veterinary Clinical Complex, Bihar Veterinary College, Patna.

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This study reports 20 clinical cases of aural haematoma in dogs, aiming to identify potential underlying causes. Ear canal cytology was performed to evaluate the presence of bacteria, yeast, and inflammatory cells. Prior to surgery, video otoscopy of both ear canals was conducted, with the ear under examination positioned uppermost. Changes in the ear canal, including wall patterns and patency, were documented. Cytological analysis revealed yeast colonies, predominantly Malassezia pachydermatis, and bacterial colonies primarily composed of cocci. Video otoscopic examination identified erythema, ear canal hyperplasia, polyps, and ceruminous gland hyperplasia. In some cases, polyps, ceruminous gland hyperplasia, and ear canal stenosis limited visualization of the tympanic membrane and deeper portions of the ear canal. These findings indicate that while ear cytology and video otoscopy provide valuable diagnostic information in dogs with aural haematomas, structural changes such as polyps, ceruminous gland hyperplasia, and canal stenosis may hinder comprehensive assessment of the ear canal.

Keywords: *Canine aural hematoma, Ear cytology, Video otoscopy*

Aural haematomas are a common concern in canine medicine, affecting both the well-being of dogs and the satisfaction of their owners. These haematomas result from the accumulation of blood between the auricular cartilage and overlying skin, often secondary to excessive head shaking or scratching. Such behaviours are frequently associated with underlying conditions, including otitis externa, parasitic infestations, atopic dermatitis, or foreign bodies in the ear canal (Rosser, 2004; Cole, 2016). If left untreated, aural hematomas may lead to complications such as fibrosis, chronic pain, and "cauliflower ear" deformity, potentially impairing ear function and appearance (Gotthelf, 2020).

Conventional diagnostic approaches primarily rely on physical examination and palpation; however, these methods may not always identify the underlying cause. Video otoscopy has emerged as a valuable tool in veterinary practice, offering high-resolution, magnified, real-time visualization of the ear canal and tympanic membrane (Cole, 2016; Merchant *et al*., 2019). This technology enhances diagnostic precision, facilitates minimally invasive procedures such as ear flushing, biopsy collection, and foreign body removal, and allows early detection of neoplasia, biofilm formation, and chronic infections. In addition to imaging, cytological evaluation plays a critical role in identifying infections or inflammatory conditions that may contribute to haematoma formation. Analysis of ear exudates enables detection of bacterial, fungal, or parasitic agents, guiding targeted treatment strategies (Rosser, 2004).

The present study aims to provide a comprehensive assessment of the ear canal in clinical cases of canine aural haematoma by integrating video otoscopy with cytological evaluation. Combining these diagnostic modalities allows for more accurate identification of underlying causes, improved treatment planning, and better clinical outcomes.

A total of 20 clinical cases of unilateral aural hematoma in dogs were included in this study. In addition to performing surgical correction following standard procedures, comprehensive ear canal examinations were conducted, including cytological analysis of ear swabs and video otoscopic evaluation to identify potential underlying causes of hematoma formation.

Ear swabs were collected from both ears at the junction of the horizontal and vertical ear canal using sterile swab sticks. The swabs were rolled onto clean glass slides, fixed with methanol, and stained with Giemsa stain for 40 minutes. Cytological evaluation was performed using a semi-quantitative scoring system to assess the presence of bacteria, yeast, and inflammatory cells, following the methodology described by Budach and Mueller (2012) (Table 1).

Video otoscopy of both ears was performed prior to surgery, with the dog positioned in left and right recumbency as appropriate. A veterinary video otoscope with a 5 mm diameter, 8.5 cm length, and integrated 5 Fr (French gauge) working channel was used for the examination. Ear canals were flushed using either normal saline or commercially available ear-cleaning agents to ensure adequate visualization.

During otoscopic examination, the following observations were recorded: patterns and changes of the inner ear canal wall, including erythema, hyperplasia, ulceration, polyps, ceruminous gland hyperplasia, or absence of changes; patency of the ear

†Corresponding author; Email: vettiwary@gmail.com

canal and ease of passage of the otoscope; and condition of the tympanic membrane (clear or opaque).

All observations were documented systematically to correlate cytological and otoscopic findings with the presence and potential causes of aural hematoma (Chaudhari, 2019).

Aural haematomas in dogs often arise secondary to otitis externa, which can result from persistent scratching and trauma to the ear pinna. Opportunistic overgrowth of bacteria and yeast, particularly *Malassezia pachydermatis*, is a common contributing factor. Cytological examination of ear swabs in this study, using a semi-quantitative method at ×400 magnification, revealed that samples scoring 3 or 4-representing moderate to high microbial populations-were likely responsible for otitis externa and the subsequent development of haematomas. Among the 20 cases, 35% scored 4, 35% scored 3, and the remaining 30% scored below 3. Yeast colonies were predominantly *Malassezia pachydermatis*, while bacterial colonies mainly consisted of cocci. One sample contained an Otodectes cynotis egg (Fig. 1). Species-specific bacterial identification was not possible as Gram staining was not performed.

These findings are consistent with previous reports. Rüfenacht *et al.* (2022) observed Malassezia in seven of 24 dogs with unilateral or bilateral otitis externa, while cocci were present in a small number of cases. Li *et al.* (2023) reported that in 195 cases of canine otitis externa, cocci accounted for 44.1%, fungi or Malassezia for 32.3%, mites for 15.9%, and foreign bodies or IgE-mediated causes for 4.1%. The most common bacterial genera included Staphylococcus, Pseudomonas, and Proteus.

Video otoscopic examination revealed structural changes in the ear canal. Erythema was observed in 20% of cases, inner ear canal hyperplasia in 10%, polyps in 5%, and ceruminous gland hyperplasia in 20% of cases. In 45% of cases, the ear canal appeared normal (Fig. 2). Canal stenosis, polyps, and ceruminous gland hyperplasia limited otoscope advancement, obstructing visualization of the lower canal and tympanic membrane. Excess hair in the ear canal also hindered visualization in some cases. In ears without hematoma, cytology revealed few cells and organisms, and otoscopy showed patent canals with smooth walls and clearly visible tympanic membranes.

Ear canal patency assessment showed that 55% of cases had stenotic canals, while 45% were patent. Stenosis was associated with chronic otitis, ceruminous gland hyperplasia, and polyps, consistent with findings reported by Chaudhari (2019). Visualization of the tympanic membrane was possible in only 15% of cases, with one case of perforation; in 50% of cases, the otoscope could not be advanced to the lower canal, and in 30%, constriction, ceruminoliths, or excessive hair obstructed the view.

Compared to radiography, video otoscopy proved more accurate for identifying ear canal pathologies and evaluating the tympanic membrane. It also facilitates ear irrigation, removal of debris, and foreign body extraction, which are beneficial for both diagnosis and treatment. The normal canine ear canal is light pink, smooth, and patent, with minimal exudate; the vertical canal diameter typically ranges from 5 to 10 mm at the junction with the horizontal canal (Cole, 2004). Hair is commonly present in the canal, occasionally forming tufts anterior to the tympanic membrane.

These results suggest that aural haematomas in dogs are commonly associated with predisposing structural lesions, such as erythema, hyperplasia of the ear canal wall, polyps, ceruminous gland hyperplasia, and stenosis. Secondary microbial factors, including moderate to high populations of *Malassezia pachydermatis* and cocci, also play a significant role in promoting otitis externa and subsequent hematoma formation. Comprehensive evaluation using both cytology and video otoscopy is therefore essential for accurate diagnosis, identification of underlying causes, and targeted management of canine aural haematomas.

References

Budach, S.C. and Mueller, R.S. 2012. Reproducibility of a semiquantitative method to assess cutaneous cytology. Vet. Dermatol. **23**: 426–e80. doi: 10.1111/j.1365-3164.2012.01075.x.

Chaudhari K.S. 2019. Evaluation of video otoscopy and ultrasound examination for earaffection and its surgico-therapeutic management in dogs. PhD Thesis, Maharashtra Animal and Fisheries Sciences University, Nagpur (Maharashtra), India.

Cole, L.K. 2004. Otoscopic evaluation of the ear canal. Vet. Clin. North Am. Small Anim. Pract. **34:** 397-410.

Cole, L.K. 2016. Diagnosis and treatment of otitis externa in dogs and cats.Vet. Clin. North Am. Small Anim. Pract. **46:** 1-26.

Gotthelf, L.N. 2020. Small Animal Ear Diseases: An Illustrated Guide, 2nd edn. Elsevier.

Li, J-P, Li, L-Y, T, F-L and Lu, D-Z. 2023. The epidemiology of canine ear diseases in Northwest China: Analysis of data on 221 dogs from 2012 to 2016. Vet. World. **16**: 2382-2388. doi: 10.14202/vetworld.2023.2382-2388.

Merchant, S.R., Neer, T.M. and Tedford, B.L. 2019. Clinical applications of video otoscopy in veterinary medicine. J. Vet. Sci. Technol. **10:** 56-67.

Rosser, E.J. 2004. Causes of otitis externa. Vet. Clin. North Am. Small Anim. Pract. **34:** 459-468.

Rüfenacht, S., Schellenberg, S., Borio, S., Summerfield, A. and Ricklin, M.E. 2022. Non-blinded treatment of aural-hematoma with oral prednisolone as a monotherapy in privately owned dogs. Schweiz. Arch. Tierheilkd. **164:** 447-455.