Case study

Therapeutic management of otitis externa in dogs~~dog~~: A case study

ABSTRACT

A one year old male German shepherd dog was presented to Veterinary Clinical Complex, College of Veterinary and Animal Science, Navania, Vallabhnagar, Udaipur with the history of head shaking, tilting of the head~~head~~ towards the affected side, foul smell and excessive amount of cerumen coming out from the ear. Clinical manifestation revealed that the dog~~dog~~ showed pain while touching the affected area. The cerumen sample from ear was taken and culture test was done. The culture test report~~Culture test report~~ revealed the presence of ~~*proteus*~~ *Proteus spp.* The dog was treated successfully with the ear cleanser containing 0.2 percent salicylic acid, pomisol ear drop and tablet gentamicin (orally).

Key Words:- Otitis externa, dog, *Proteus spp.*, Gentamicin

Formatted: Font: Italic

Formatted: Font: Italic

INTRODUCTION

Otitis externa is one of the most common and multifactorial disorders, accounting~~disorders accounting~~ for up to 10 to 20% of discourse in canine practice (Senthil *et al.*, 2010, Martino *et al.*, 2016). The etiological factors of otitis externa can be described as predisposing factors, primary factors, perpetuating factors and secondary causes with predisposing factors. Primary factors have a direct effect on the skin of the ear canal~~ear canal~~. Predisposing factors are those components that directly change the microclimate~~micro climate~~ in the ear canal (Paterson, 2016). It is a broad term for a disease state that happens when the layer

of cells that line the external ear canal becomes inflamed. It can vary from discomfort and mild inflammation to a life-threatening disease. The clinical signs may include any combination of head shaking, odour, pain on manipulation of the ear, exudate and erythema (Bollez *et al*., 2018). Numerous causative agents have been associated with otitis externa, but bacterial organisms are one of the most important ones. So far, different species of bacteria have been isolated from dogs with otitis externa viz., *Staphylococcus*, *Streptococcus*, *Pseudomonas*, *Proteus*, and *Escherichia coli* were the most prevalent isolated bacteria (Greene, 2006 and Scott *et al*. 2001). Practically treatment of otitis externa could be performed by ear cleaning, topical administration of anti-inflammatory and antimicrobial agents (Greene, 2006; Harvey *et al*., 2001). Topical therapy is especially beneficial because drugs attain their highest concentrations with the fewest systemic effects (Greene, 2006). The goals of this study were to find bacteria involved in otitis externa and their antimicrobial susceptibility pattern and compare them with morphological and staining properties of prepared smears from secretions of the ear canal~~ear canal~~ to assist clinicians in successful therapeutic management (Malayeri, *et al*.2010).

Materials and methods

A German Shepherd dog was presented to VCC, CVAS, Navania, Udaipur with the symptoms of head shaking, itching of ear, presence of abnormal secretions, redness of the auricle and external ear canal, pain on palpation of the ear and malodorous ear.

Sample collection

Ear exudates samples were obtained by inserting sterile swabs to the junction of vertical and horizontal external ear canal. The otic exudates were collected from the dog~~dog~~ as per the method described by Wilkinson and Harvey (1994). The collected sample was subjected to

culture examination. The *Proteus mirabils* was identified on the basis of swarming growth on blood agar and primary and secondary isolation of bacteria as described by Markey *et al*., 2013.

Fig.1 Sample collection from the ear of affected dog

Antimicrobial susceptibility testing

The antimicrobial susceptibility patterns of isolated bacteria were determined by disk diffusion method using Mueller– Hinton agar (Oxoid Ltd, UK). The inhibitory zone diameters were measured around the antibiotic disks after incubation for 24 h at 37^0 C. Different antibiotics were used (Hi-Media, Mumbai) in the study viz., Ampicillin-Sulbactum (10/10mcg), Ciprofloxacin(10 mcg), Cephotaxim (30mcg), Doxycycline (30mcg), Gentamicine, (10mcg) and Oxytetracycline (30mcg) to determine the resistance patterns of bacterial pathogens isolated from otitis externa affected dog.

Results and Discussion

Ear disease is one of the most common disease complain observed in the dogs and it can be caused by bacterial or fungal species. In the present case, the *Proteus mirabilis* was isolated from the ear of affected dog.

The swab sample from the ear of a dog~~dog~~ was found positive for the *Proteus mirabilis* on the basis of culture and biochemical characteristic. On analyzing the antibiogram of *proteus mirabilis*, it was observed that gentamicin was effective for the bacterial isolate and rest of the all five antibiotics showed resistance to the *Proteus spp*. The dog was treated with tablet gentamicin orally and topically along with cleaning of ear by Epiotic cleanser biweekly and 3-4 drops of Pomisol in the affected ear~~affected ear~~ and prednisolone acetate for two weeks.

After the therapy, the dog showed the remission of symptoms and recovered successfully in two weeks. It underlined on the importance of considering the results of the microbiological and antibiotic sensitivity tests to decide a suitable antibiotic therapy.

References

Comment [h1]: Please update thr references

Bollez A, de Rooster H, Furcas A. (2018). Prevalence of external ear disorders in Belgian stray cats. J Feline Med Surg, **20**:149-154.

Greene CE (2006) Otitis Externa. In: Greene CE (ed) infectious Diseases of the Dog and Cat, 3rd edn. Saunders, Missouri, pp 815–823.

Harvey RG, Harari J, Delauche AJ. (2001). Etiopathogenesis and classification of otitis externa. In: Ear Diseases of Dog and Cat, Ames: Iowa State University Press, pp: 81-85.

Malayeri, H.Z., Jamshidi, S. and Salehi, T.Z. (2010). Identification and antimicrobial susceptibility patterns of bacteria causing otitis externa in dogs. *Vet Res Commun*, **34**(5):435–444.

Markey, B., Leonard, F., archambault, M., Cullinane, A. and Maguire, D. (2013). Clinical VeterinaryVaterinary Microbiology, Mosby Ltd.

Martino, L.D., Nocera, F.P., Mallardo, K., Nizza, S., Masturzo, E., Fiorito F., Iovane, G. and Catalanotti, P. (2016). An update on microbiological causes of canine otitis externa in Campania Region, Italy. *Asian Pac J Trop Biomed*, **6**(5): 384–389.

Paterson, S. (2016).Topical ear treatment–options, indications and limitations of current therapy. Journal of Small Animal Practice. **7**:67-75.

Scott DW, Miller WH, Griffin CE (2001). Muller & Kirk's small animal dermatology. Saunders, Philadelphia.

Senthil, K.K., Selvaraj, P., Vairamuthu, S., Mala, S. and Kadiresan, D. (2010). Antibiogram patterns of microbes isolated from otitis externa of dogs. Tamil Nadu Journal Veterinary and Animal Sciences. 6 (3):145-147.

Wilkinson, G.T. and Harvey, R.G. 1994. Colour Atlas of Small Animal Dermatology - A Guide to Diagnosis, 2nd edn. Mosby-Wolfe Bar.