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Prevalence of bacterial otitis externa in dogs at veterinary clinical complex, Nagpur

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Abstract

The present investigation was carried out to determine the prevalence and demographic distribution of otitis externa in dogs attending the Veterinary Clinical Complex, Nagpur Veterinary College, Nagpur, from March 2025 to December 2025. Among the 18,172 cases attending the Medicine Section, 228 dogs were diagnosed with otitis externa, yielding an overall prevalence of 1.25%. In this study, the prevalence was to be higher in male dogs (59.21%) than in female dogs (40.79%). The highest prevalence was observed in the 3.1-6-year age group (38.60%), followed by 1 month-3 years (31.58%), 6.1-9 years (19.30%), and > 9.1 years (10.52%). Breed-wise, Labrador Retrievers (30.70%) were the most affected, followed by nondescript dogs (19.74%), German Shepherds (13.16%), and Golden Retrievers (12.30%). In the weight-wise distribution, the highest number of dogs with otitis externa were in the 24.1-34.0 kg group, i.e., 40.35%. The high susceptibility of middle-aged, male, and medium-to-large breed dogs could be due to anatomical, hormonal, and exposure factors. Differences in the prevalence of otitis externa compared with previous studies could be attributed to geographical, climatic, and managerial variations. The present study provides insight into the prevalence of otitis externa in dogs in the Nagpur region.

Keywords: Otitis externa, prevalence, dogs, Nagpur

1. Introduction

Otitis externa is defined as the inflammation of the external ear canal and surrounding tissues (Hassan *et al.*, 2023) ^[1]. It is a complex condition with a wide range of causative factors, including infections, allergic conditions, parasitic infections, foreign bodies, and anatomical abnormalities. It can be either unilateral or bilateral and may be an acute condition or a chronic and recurrent disease. Chronic and recurrent cases are often associated with progressive structural and pathological changes in the ear canal (Jacobson *et al.*, 2002) ^[2]. The canine ear canal is very sensitive to even the slightest anatomical and physiological changes, which can lead to the development of a microenvironment conducive to microbial growth which results into otitis externa (Fernández *et al.*, 2006) ^[3].

Otitis externa is one of the most common dermatological conditions encountered in dogs, accounting for up to 16% of veterinary consultations, either as a primary or secondary diagnosis (Luciani *et al.*, 2023) ^[4]. The prevalence of otitis externa in dogs attending veterinary clinics has been reported to vary between 7.3% and 10.2% (Gotthelf, 2017) ^[5].

2. Materials and Methods

2.1 Study Location and Duration

The present study, entitled “Medical Management of Otitis Externa in Dogs with Different Therapies” was conducted at the Department of Veterinary Clinical Medicine, Ethics, and Jurisprudence, Nagpur Veterinary College, Nagpur. Clinical cases were enrolled from the Veterinary Clinical Complex (VCC), Nagpur Veterinary College, from March 2024 to December 2025.

2.2 Selection of Animals

Dogs referred to the Veterinary Clinical Complex with clinical manifestations of otitis externa were selected. Dogs showing clinical manifestations of chronic head shaking, scratching of the ears, foul-smelling or purulent discharge from the ears, alopecia around the pinna, and abnormal discharge from the outer ear canal were selected for the study.

2.3 Clinical Evaluation

Data such as age, sex, breed, and body weight were recorded. A detailed physical and dermatological examination of the affected ear (s) was conducted. Pain reaction, swelling, thickening, fibrosis, calcification, or mineralisation of the pinnae and the external ear canal were evaluated by inspecting the ear. A detailed examination of the pinnae was conducted to assess the presence of dermatological manifestations such as erythema, crusting, erosions, ulcerations, lichenoid changes, and hyperpigmentation, as shown in Fig. 1 and 2.

These clinical manifestations were recorded to assess the severity, chronicity, and progression of the disease process of the selected cases of otitis externa.



Fig 1: Severe Ulceration and erythema of the external ear canal of a dog suffering from chronic otitis externa



Fig 2: Clinical appearance of the external ear canal of dog suffering from otitis externa showing muco-purulent discharge and crust formation on ear pinna

3. Results and Discussion

A total of 18,172 cases were presented to the Medicine Section of Veterinary Clinical Complex, Nagpur, during the study period (March 2025 to December 2025), out of which 228 dogs were diagnosed with otitis externa, making the overall prevalence to be 1.25%. The prevalence reported in the present study is consistent with the earlier findings reported by Terziev *et al.*, (2018) ^[6], who recorded a prevalence of 4.58%; and by Chaudhary *et al.*, (2023) ^[7] who observed the prevalence to be 1.33%.

3.1 Sex Wise Prevalence

Sex-wise distribution showed that the disease was more common in male dogs (59.21%) than female dogs (40.79%). The present findings correlate with the findings of Kumar *et al.*, (2014) ^[8], Kashyap (2017) ^[9], Khan *et al.*, (2019) ^[10], Babji *et al.*, (2021) ^[11], O'Neill *et al.*, (2021) ^[12], Chaudhary *et al.*, (2023) ^[7], and Singh *et al.*, (2024) ^[13], which showed that male dogs were more susceptible to the disease than female dogs. The high incidence of the disease in male dogs could be due to androgenic stimulation of the sebaceous glands, leading to an increase in microbial growth. The high number of male dogs presenting with the disease could also be due to the preference of the pet owners for male dogs Table 1.

3.2 Age Wise Prevalence

In the age-wise distribution, the highest prevalence was found in the 3.1-6-year age group, i.e., 38.60%. This was followed by the 1month-3 years, 6.1-9 years, and ≥ 9.1 years age groups, which had 31.58%, 19.30%, and 10.52% prevalence, respectively. This finding was consistent with the findings of Kumar *et al.*, (2014) ^[8], Barua *et al.* (2021) ^[14], and Singh *et al.* (2024) ^[13], who found that the highest prevalence was found in the 3-6-year age group.

In the middle age group, the increased prevalence of otitis externa could be due to increased exposure, physical activity, and increased activity of the ceruminous gland, which creates favourable conditions for bacterial and fungal proliferation, thus leading to otitis externa Table 1.

3.3 Breed Wise Prevalence

Breed-wise analysis revealed that the highest prevalence was found in Labrador Retriever (30.70%), nondescript (19.74%), German Shepherd (13.16%), Golden Retriever (12.30%), Rottweiler (5.70%), Pugs, and Pomeranians (4.39% each), Shih Tzus (3.50%), Dobermans (2.63%), Huskies, Dachshunds (1.31% each), and American Bullies (0.87%). Similar results were obtained by Barua *et al.* (2021) ^[14], Babji *et al.* (2021) ^[11], and Ponn *et al.* (2024) ^[15]. The predisposition seen in the Labrador retriever breed might be related to the density of apocrine glands and pendulous ear conformation, which would lead to retention of moisture. Whereas the frequency seen in nondescript breeds is related to environmental exposure and a lack of preventive care Table 1.

3.4 Weight-wise Prevalence

Weight-wise distribution showed that the highest prevalence was observed in dogs with 24.1-34.0 kg body weight (40.35%), followed by 14.1-24.0 kg (29.82%), ≥ 34.1 kg (15.79%), and 4.0-14.0 kg (14.04%). The results of the present study were in accordance with Ponn *et al.* (2025) ^[16]. This could be due to anatomical features of the external ear canal with respect to the body size, which affects ventilation and moisture retention Table 1.

Table 1: Number of observations along with Chi-Square of different parameters in dogs suffering from otitis externa

Parameter	Category	No. of Dogs	Percentage (%)
Body weight (kg)	4.0-14.0	32	14.04
	14.1-24.0	68	29.82
	24.1-34.0	92	40.35
	≥ 34.1	36	15.79
Chi-square value = 42.3 highly significant ($p < 0.01$)			
Sex	Male	135	59.21
	Female	93	40.79
Chi-square value = 7.77 highly significant ($p < 0.01$)			
Age (years)	1 month-3 years	72	31.58
	3.1-6.0 years	88	38.60
	6.1-9.0 years	44	19.30
	≥ 9.1 years	24	10.52
Chi-square value=42.86 highly significant ($p < 0.01$)			
Breed	Labrador Retriever	70	30.70
	German Shepherd	30	13.15
	Golden Retriever	28	12.30
	Rottweiler	13	5.70
	Pomeranian	10	4.39
	Pug	10	4.39
	Shih Tzu	8	3.50
	Doberman	6	2.63
	Others	8	3.50
	Non-descript	45	19.74
Chi-square value = 171.48 highly significant ($p < 0.01$)			

4. Conclusion

The prevalence of otitis externa in dogs that were presented to the Veterinary Clinic Complex during the study period was 1.25%. Otitis externa had a greater prevalence in males (59.21%) than in females (40.79%), with the greatest prevalence in the 3-6 years age group (38.60%), and was more prevalent in Labrador retrievers and in dogs with a body weight between 24.1-34.0 kg, thus indicating that age, sex, breed, and body weight are predisposing factors for otitis externa in dogs.

5. Conflict of Interest

Not available

6. Financial Support

Not available

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