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Incidence of corneal ulcer in dogs: A retrospective study

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Abstract

Incidence of corneal ulcers were recorded for a period of one year from August 2024 to July 2025 in dogs presented to the Department of Veterinary Surgery and Radiology, Veterinary College Hospital, Hebbal, Bangalore. A higher incidence of corneal ulcer was observed in Shih- Tzu male dogs up to three years of age.

Keywords: Incidence, dog, corneal ulcer

1. Introduction

Corneal ulceration or ulcerative keratitis is one of the most common extra ocular disease identified in dogs (Ramani, C *et al.*, 2012) ^[1]. The etiologies for corneal ulcers are categorized into congenital origin, infectious cause, allergic origin, trichiasis, distichiasis, ectopic cilia, entropion, trauma, foreign body in eye and lack of tear productions (Gilger *et al.*, 2007) ^[2]. The symptoms of ulcerative keratitis are due to ciliary disorders which include epiphora, blepharospasm and mild to moderate conjunctivitis (Gelatt, 1991) ^[3]. The most common symptom of corneal disorder is loss of corneal clarity and it arises as a result of non-cellular infiltration buildup, pigmentation, fibrosis and oedema (Morreale, 2003) ^[4]. Corneal neovascularisation is a generalized response to corneal pathologies such as congenital diseases, contact lens-related hypoxia, allergy, trauma, infectious keratitis, autoimmune diseases and corneal graft rejection (Feizi *et al.*, 2017) ^[5].

Corneal ulcers are classified based on ease of healing as complicated, uncomplicated and refractory and based on depth as superficial, deep and descemetocoele (Moore, 2003) ^[6]. On the basis of depth, corneal ulcers are classified as ulcerative keratitis, superficial corneal ulcer, deep stromal corneal ulcer, descemetocoele and corneal perforation and on the basis of underlying causes as bacterial, fungal, traumatic, immune mediated, indolent ulcers etc (Gilger *et al.*, 2007) ^[2].

Complete ophthalmological examination including gross examination, vision reflex tests such as menace reflex, pupillary light reflex, Palpebral reflex, Dazzle reflex, Schirmer's tear test, microbiological examination, fluorescein dye test, ophthalmoscopic examination and tonometry recorded during their study on diagnosis and management of corneal ulcer in dogs are helpful in diagnosis as well as for assessing treatment efficacy (Kaushal *et al.*, 2024) ^[7].

This document presents a retrospective study on incidence of corneal ulcer studied for a period of twelve months in dogs presented to the Department of Veterinary Surgery and Radiology, Veterinary College Hospital, Hebbal, Bangalore.

Materials and Methods

The dogs presented to the Department of Veterinary Surgery and Radiology, Veterinary College Hospital, Hebbal, Bangalore with ocular affections were thoroughly screened for corneal pathology disorders for a period of twelve months from August 2024 to July 2025 by detailed ophthalmic examination and diagnostic tests. Total number of dogs presented to the Department during this period was 10,041. Out of these, the number of dogs presented with

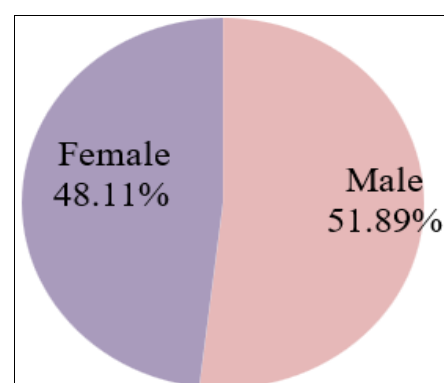
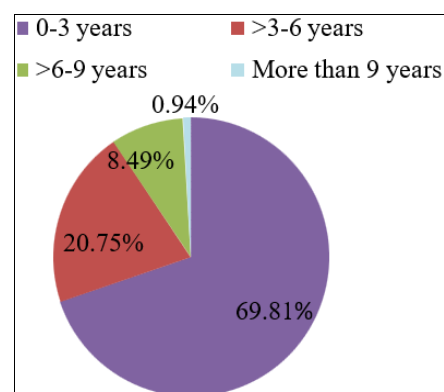
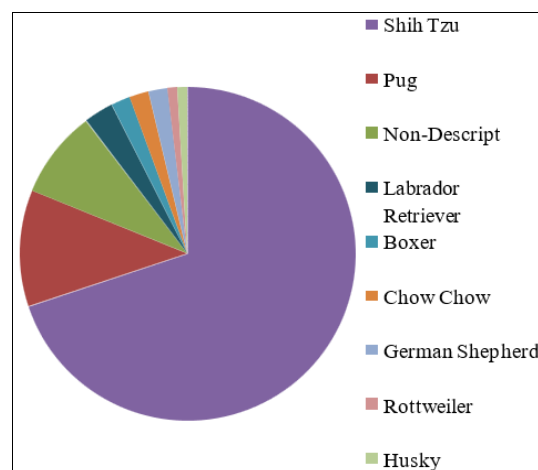
ocular affections was 243. Among the dogs presented with ocular affections, 106 dogs had corneal ulcer. Detailed ophthalmic examinations were performed with direct ophthalmoscope for diagnosis and confirmation was done with fluorescein dye test. The incidence of corneal ulcer with reference to the age, breed and gender were analysed and presented.

Results and Discussion

A total of 10,041 dogs were presented to the Department of Veterinary Surgery and Radiology, Veterinary College Hospital, Hebbal, Bangalore during the study period of twelve months (August 2024 to July 2025) out of which 243(2.42%) dogs were related to ocular affections. Corneal ulcer cases among the total ocular affections in dogs accounted for 43.62% (106). These observations were supported by of Pandey *et al.* (2018) ^[8] who got highest incidence for corneal ulcer among the total ocular affections in his study on occurrence of corneal ulcer.

In the present study the highest occurrence of corneal ulcer was recorded in Shih Tzu (69.81%, 74/106) followed by Pug (11.32%, 12/106), Non-Descript (8.49%, 9/106), Labrador Retriever (2.83%, 3/106), Boxer (1.87%, 2/106), Chow Chow (1.87%, 2/106), German Shepherd (1.87%, 2/106), Rottweiler (0.94%, 1/106) and Husky (0.94%, 1/106) (Figure 1). This observation was in accordance with the findings of Auten *et al.* (2020) ^[9] who recorded highest occurrence of corneal ulcers in Shih Tzus, followed by Pugs. In contrast, Ramani *et al.* (2012) ^[1], Sale *et al.* (2013) ^[11] and Mishra *et al.* (2021) ^[12] reported the highest incidence of corneal ulcer in Pugs. This could be attributed to the popularity of the Shih Tzu breed in the city (Bhumika, 2023) ^[10], and the congenital predisposition of brachycephalic breeds to the corneal ulcer (Packer *et al.*, 2015) ^[13].

In the age wise distribution, the highest occurrence rate of corneal ulcer was observed in the 0-3 years age group (69.81%) folloled by >3 to 6 years (22, 20.75%), >6 to 9 years (9, 8.49%) and more than 9 years (1, 0.94%) (Figure 2). This observation was in line with the findings of Kim *et al.* (2009) ^[4] and Ramani *et al.* (2012) ^[1] who suggested that this could be due to the less sensitive cornea and highly playful nature of young dogs, which made them more prone to ocular trauma. However in contrast Wilkie and Whittaker (1997) ^[15] opined that dogs of any age could be affected with corneal ulceration. The present study recorded a slightly higher occurrence of corneal ulcer in males (51.89%, 55/106) than in females (48.11%, 51/106) (figure 3). Similar findings have been reported by Moore (2003) ^[6] and Ramani *et al.* (2012) ^[1], which was attributed to the preference of owners to have male dogs as pet. But, Suhas (2015) ^[16] and Deny (2022) ^[17] reported a higher incidence of corneal ulcer in females as compared to male dogs. Wilkie and Whittaker (1997) ^[15], Murphy *et al.* (2001) ^[18], Goulle (2012) ^[19] and Aswathy (2021) ^[20] reported that there was no sex predilection with regard to corneal epithelial defects in dogs.



Conclusion

The overall incidence of corneal ulcer in the present study was found to be 1.05% out of total canine cases presented (106/10,041) and 43.62% out of total ocular affections (106/243). The following conclusions were made from the present study, the young male dogs of brachycephalic breeds especially Shih Tzus were mostly affected with corneal ulcer. This higher incidence could be due to their brachycephalic nature. An increased incidence of corneal ulcer is found in this breed compared to an occurrence study recorded from the same department during 2021-22. This could be due to the increased prevalence of the breed. So the study documented the need of a periodic ophthalmic examination in this breed at young age.

Conflict of Interest

Not available

Financial Support

Not available

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