



The Study of Emerging Trends of Hospital Occurrence of Surgical Ophthalmic Diseases in Dogs

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Authors' contributions

This work was carried out in collaboration among all authors. Authors RTM and SKM designed the study, performed the statistical analysis, wrote the protocol and first draft of the manuscript. Author NUD managed the analyses of the study. Authors JSK and AA managed the literature searches. All authors read and approved the final manuscript.

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Short Research Article

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ABSTRACT

Aim: To study the emerging trends of hospital occurrence of the surgical ophthalmic diseases in dogs.

Place and Duration of Study: Department of Veterinary Surgery and Radiology, College of Veterinary Science, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India during the period from October 2020 to March 2021.

Methodology: The study was conducted on the dogs presented to the hospital clinics for primary ocular ailments with the objective of reporting the various ocular affections observed in dogs.

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Results: A total of 141 dogs were studied over a period of six months with the younger dogs most commonly presented for ocular affections than the adult and senile dogs. The incidence of ocular disorders was more in male animals compared to the female animals. Pugs were the most frequently presented breed of dogs for ocular affections followed by Labrador Retriever and Spitz. Bilateral affections were more common than the affections of either right or left eye and cornea was the most commonly affected anatomical structure of the eye followed by the lens and other structures of eye.

Conclusion: Pigmentary keratitis, cataract, traumatic proptosis and corneal ulcers were the most common ocular affections observed in more than 50 percent of the study population.

Keywords: Ocular affections; pigmentary keratitis; incidence; dogs; pugs.

1. INTRODUCTION

The sense of vision is the most important of all the senses when it comes to the survival of the animal species. Eye is one of the sensitive organs which along with the incomplete bony orbit of the dogs makes the globe more prone to trauma even with the mild insult to its homeostasis (Magrane, 1971). In the recent years, concern has arisen with respect to artificial selection in pedigree breeding for extreme facial morphologies in domestic dog breeds which have led to an increased frequency of ocular disorders (Rooney & Sargan, 2009). Ocular affections have become an important part of the small and companion animal practice such that studies on the eye and its structures are considered important because of the need to prevent loss of vision and the greater skill and precision involved in the ocular interventions. The studies on ocular affections may provide information on the prevalence of ocular diseases and also help to limit diagnostic possibilities and treatment options (Andrade et al., 2005). The study was performed with the objective of documenting the various types of ocular affections observed in the canine population presented to the hospital clinics.

2. MATERIAL AND METHODS

The study was conducted on the dogs presented to the Department of Veterinary Surgery and Radiology, GADVASU, Ludhiana for primary ocular affections during a period of six months (October 2020 to March 2021). All the animals underwent a thorough ophthalmological examination which comprised of gross ophthalmological examination and behavioural assessment of vision (Cotton Ball Tracking Test and Maze test with obstacles), neuro-ophthalmic examination (Pupillary Light Reflex, Palpebral Reflex, Dazzle Reflex and Menace Response) and special diagnostic tests such as Schirmer's

tear test, tonometry, ocular staining test, slit lamp biomicroscopy, ophthalmoscopy and fundoscopy to establish an etiological diagnosis (Maggs, 2018). The data was collected and the ocular affections were analysed with respect to the age, sex, breed and anatomical structure of the eye affected.

3. RESULTS AND DISCUSSION

During the entire period of study, 141 dogs belonging to different breeds presented for primary ocular ailments were studied and the diagnoses were recorded. Out of the 141 dogs, majority of the ocular disorders were distributed among the younger age group (37.59%) followed by the adults (34.04%) and the senile group (28.37%) as shown in Fig. 1. Findings similar to the current study that younger dogs less than 3 years old are more susceptible to ocular affections was observed in various earlier studies (Akinrinmade & Ogungbenro, 2016; Antonia et al., 2014; Kumar et al., 2018). One study reported results contradictory to the current study that adult dogs above 5 years of age represented the major share of ocular disorders (47.68%) followed by middle aged dogs and young dogs (Tamilmahan et al., 2013). The study population comprised of 101 male animals (71.63%) and 40 female animals (28.37%). Various earlier studies (Kumar et al., 2018; Tamilmahan et al., 2013) also reported higher incidence of ocular affections in male animals compared to female animals however contradictory observations were also recorded in some studies (Akinrinmade & Ogungbenro, 2016).

Among the presented cases, the highest distribution of ocular disorders was in the Pug (31.21%) breed of dogs followed by Labrador Retriever (16.31%), Spitz (7.80%), Beagle and Chow Chow (4.96% each), American Bully and Cocker Spaniel (2.84% each), German Shepherd, Golden Retriever, Pitbull and Shih

Tzu (2.13% each), Boxer, Bull dog, French Bull dog and Siberian Husky (1.42% each) and Bull terrier, Lhasa Apso, Rottweiler, Saint Bernard

and Yorkshire terrier (0.71% each). Non-Descript dogs estimated around 11.35 percent of the total ocular disorders recorded in the study (Fig. 2).

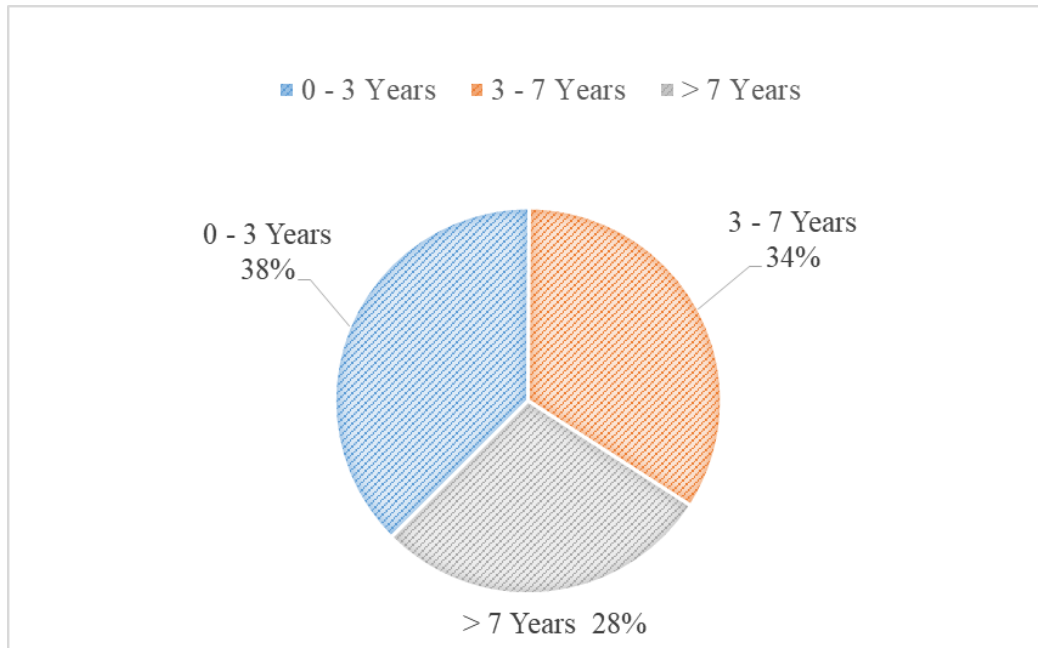


Fig. 1. Age-wise distribution of ocular disorders

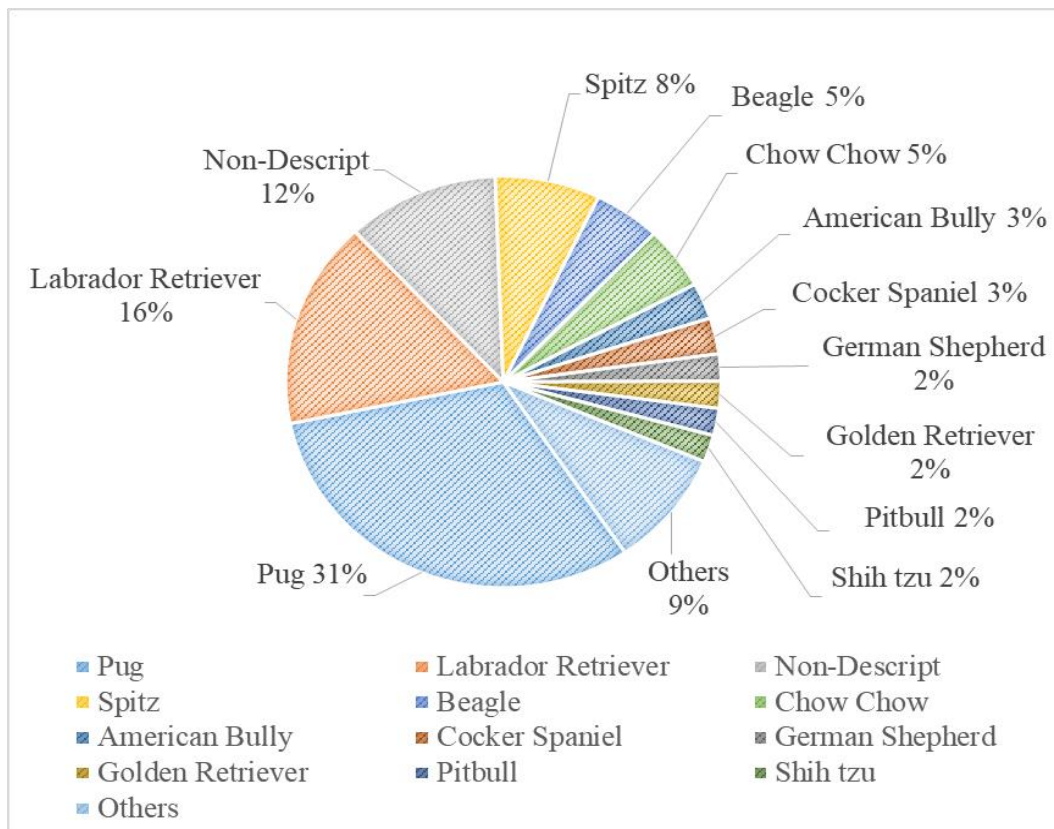


Fig. 2. Breed-wise distribution of ocular disorders

Pugs were reported to be the most commonly affected breed of dogs with ocular affections in various other studies (Antonia et al., 2014; Kumar et al., 2018). The higher incidence of the ocular affections among pug breed of dogs may be due to their pure bred characteristics such as lagophthalmos and macroblepharon which makes them prone to corneal dry spot formation and exposure keratopathy (Plummer, 2015; Van Der Woerd, 2004; Whitley et al., 1995). Various other breeds such as Spitz, German Shepherd and Alsatian were reported with highest incidence of ocular ailments in other studies (Akinrinmade & Ogungbenro, 2016; Kalaiselvan et al., 2009; Tamilmahan et al., 2013). Bilateral ocular affections (65.96%) formed the major part of all ocular ailments followed by the affections of left eye (19.86%) and the right eye (14.18%).

The ocular disorders recorded in this study were also categorised based on the anatomical structure involved as described in Fig. 3. The corneal disorders (n=51) constituted the major part of ocular affections followed by the lens (n=25), orbit & globe (n=23), eyelids (n=22), conjunctiva (n=10), fundus (n=8) and uvea (n=2). Contradictory results were recorded by different studies with some reporting cornea to be the most commonly affected anatomical structure (Antonia et al., 2014; Chakrabarti et al., 2014; Tamilmahan et al., 2013) while the others reporting the lens, eyelids and conjunctiva to be

most commonly affected structure of the eye (Akinrinmade & Ogungbenro, 2016; Martins & Barros, 2014; Sale et al., 2013).

Among the corneal disorders recorded in the study, pigmentary keratitis (52.94%) had the major distribution followed by corneal ulcers (31.37%), corneal opacity (11.76%) and descemetocoele (3.92%). Various studies have reported pigmentary keratitis and ulcerative keratitis to be the most common affections of the superficial cornea in dogs (Antonia et al., 2014; Kumar et al., 2018). Corneal opacity and Corneal ulcer was reported as the most common ocular disorder in dogs by Tamilmahan et al., (2013) and Ion et al., (2015). Cataract (n=19) was the most common disorder of the lens followed by lens luxation (n=3) and Nuclear sclerosis (n=3). Traumatic rupture of the globe and proptosis (n=19) was the most common ailment of the orbit and globe followed by glaucoma (n=4). Entropion (n=11) was the most common disorder observed in the eyelids followed by prolapse of third eyelid gland (n=7), Distichiasis (n=2), styne (n=1) and horner's syndrome (n=1). Conjunctivitis (n=9) was the most common disorder of the conjunctiva observed followed by chemosis (n=1). Retinal detachment (n=7) was the most common disorder of the retina observed followed by retinal haemorrhage (n=1). One case each of anterior synechiae and anterior uveitis was observed in the uvea.

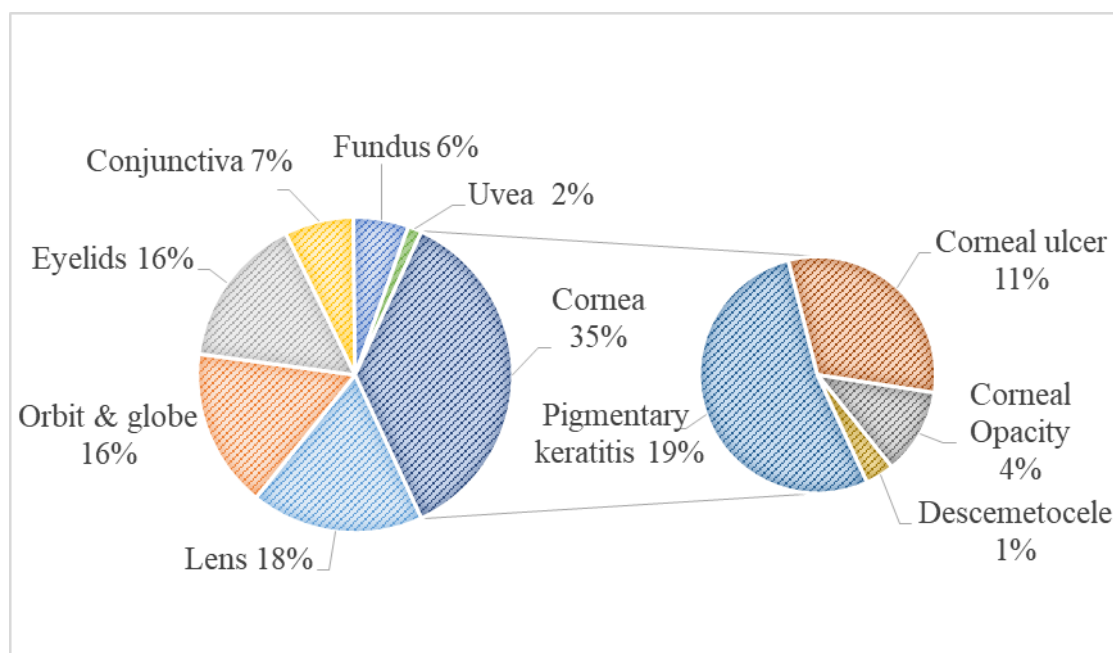


Fig. 3. Distribution of ocular disorders based on anatomical structure

4. CONCLUSION

The results of the present study reinstate the diverse nature of the ocular affections and the importance of establishing a proper etiological diagnosis. It can be concluded that cornea and lens are the two important anatomical structures of the eye that are more susceptible to ailments. Considering that the study only focused on the documentation of the ocular disorders in the dogs presented to the hospital, further studies are warranted for the detailed investigation of the etiological background of these ocular affections and their effective therapeutic management.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators were used during the writing or editing of manuscript.

ETHICAL APPROVAL

Animal Ethic committee approval has been collected and preserved by the author(s).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

- Akinrinmade, J., & Ogungbenro, O. (2016). Incidence, diagnosis, and management of eye affections in dogs. *Sokoto Journal of Veterinary Sciences*, 13(3), 9. <https://doi.org/10.4314/sokjvs.v13i3.2>
- Andrade, S. F., Gonçalves, I. N., & Junior, M. M. A. (2005). Evaluation of Schirmer tear test with the use of melting filter paper Prudente. *Clínica Veterinária*, 10(55), 34–36.
- Antonia, N., Narayanan, M., Anoop, S., Devanand, C., Martin, J., & Venugopal, S. (2014). Occurrence of ophthalmic disorders in dogs. *Indian Journal of Veterinary Research*, 23(2), 21–24.
- Chakrabarti, A., Kumar, P., Chandran, P. C., Dey, A., & Dayal, S. (2014). Prevalence of eye diseases of cattle in Bihar, India. *Journal of Animal Health and Production*, 2(2), 25–27.
- Ion, L., Ionascu, I., & Birtoiu, A. (2015). Melting keratitis in dogs and cats. *Agriculture and Agricultural Science Procedia*, 6, 342–349.
- Kalaiselvan, A., Pawde, A. M., Kinjavdekar, P., Aithal, H. P., & Gupta, O. P. (2009). Occurrence of ocular affections in domestic animals. *Indian Journal of Animal Sciences*, 79(10), 1020–1021.
- Kumar, T., Punia, M., Agnihotri, D., Sindhu, N., & Jain, V. K. (2018). Incidence of ophthalmic affections in dogs – A short study. *International Journal of Current Microbiology and Applied Sciences*, 7(9), 1560–1565. <https://doi.org/10.20546/ijcmas.2018.709.187>
- Maggs, D. J. (2018). The ophthalmic examination and diagnostic testing. In D. J. Maggs, P. E. Miller, & R. Ofri (Eds.), *Slatter's fundamentals of veterinary ophthalmology* (6th ed., pp. 18–50). Elsevier Health Sciences.
- Magrane, W. G. (1971). *Canine ophthalmology* (3rd ed.). Lea & Febiger.
- Martins, T. B., & Barros, C. S. L. (2014). Fifty years in the blink of an eye: A retrospective study of ocular and periocular lesions in domestic animals. *Pesquisa Veterinária Brasileira*, 34(12), 1215–1222. <https://doi.org/10.1590/S0100-736X2014001200012>
- Plummer, C. E. (2015). Addressing brachycephalic ocular syndrome in the dog. *Today's Veterinary Practice*, April.
- Rooney, N. J., & Sargan, D. R. (2009). *Pedigree dog breeding in the UK: A major welfare concern* (pp. 1–76). RSPCA.
- Sale, M., Jhala, S., Parikh, P. V., Patil, D. B., Joy, N., & Ranpariya, J. J. (2013). Incidence of ophthalmic affections in dogs (2004–2013). *Indian Journal of Veterinary Surgery*, 34(1), 61–62.
- Tamilmahar, P., Zama, M. M. S., Pathak, R., Muneeswaran, N. S., & Karthik, K. (2013). A retrospective study of ocular occurrence in domestic animals: 799 cases. *Veterinary World*, 6(5), 274–276. <https://doi.org/10.5455/vetworld.2013.274-276>
- Van Der Woerd, A. (2004). Adnexal surgery in dogs and cats. *Veterinary*

Ophthalmology, 7(5), 284–290. Whitley, R., McLaughlin, S., & Gilger, B. (1995).
https://doi.org/10.1111/j.1463-5224.2004.04044.x Update on eye disorders among purebred
dogs. *Veterinary Medicine*, 90, 574–592.

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