
OCULAR AFFECTIONS IN DOGS – A SHORT STUDY

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ABSTRACT

A prospective study of ocular affections was carried out in 80 dogs of all possible breeds presented at Teaching Veterinary Clinical Complex, Pookode, Wayanad, over a period of one month (Dec 2019). A generalization was made on the awareness of owners and veterinarians regarding the observed ocular affections in all such cases. Specific correlation of lesions with age, breed, and sex of the animal was taken into account, keeping in mind the breed, age, and sex predispositions to each condition. The study overlooks ocular affections and suggests the significance of early observed ocular affections in avoiding any potential risk of late observed ocular abnormalities.

Keywords: Ocular conditions, Breed, Age, Sex

INTRODUCTION

In all domestic animals, systemic diseases are often associated with ocular

manifestations. Recognition of ocular signs assists both ocular and systemic diagnosis because eyes can be examined readily (Aroch *et al.*, 2008). For example, congested ocular mucous membrane and signs of the onset of conjunctivitis could be a sign of forthcoming infections. Such recognition allows more accurate diagnosis of systemic disorders as well as more effective evaluation of treatment. Cullen *et al.* (2014) and Aroch *et al.* (2008) reported the significance of ocular examination in deriving accurate diagnosis of systemic as well as ocular affections.

MATERIALS AND METHODS

A total of 80 dogs of different ages, sex, and breed were included in the study conducted at Teaching Veterinary Clinical Complex, Pookode during Dec 2019. Signalment and detailed anamnesis were obtained for each case selected. History on the duration of illness, symptoms observed by the owner, and previous treatment regimen, if any, were recorded. Gross examination of eye

and adnexa was performed to inspect the nature of the discharge, photophobia, eyeball in relation to the orbit, third eyelid, number of blinks, corneo-palpebral ratio, eyelid deformity (entropion or ectropion), etc. A close ocular examination was performed for pupil size and symmetry and to identify any corneal abnormalities. Menace reflex, pupillary light reflex, blink reflex, and Schirmer tear test (STT) were also conducted.

After proper restraining of the animal, the nature of ocular discharge was noted down as mucoid, serous, and mucopurulent. Afterward the total number of blinks of each eye was recorded for a period of one minute. Care was taken not to cause any irritation to the eye while recording the blinks. This was followed by an examination of eyelids for inward curling (entropion) or outward curling (ectropion). Inciting factors for the condition (if any) were also looked for and recorded. Care was taken to perform the test for tear production (Schirmer Tear Test) before any manipulation of the eyes.

The response to exposure to light as a test for photophobia was observed and noted. All pronounced third eyelid abnormalities were noted down, including its prominent coverage over the eye or inflammation. Menace reflex test was performed by the hand movement

made across animal's visual field and care was taken to prevent air currents from stimulating corneal or palpebral reflexes. The dazzle reflex was observed by recording the partial blink response of each eye when a bright torchlight was flashed onto it. The cornea was examined for any kind of opacity or cloudiness and the corneo-palpebral ratio was also noted down. The pupil was examined for its size and colour. The constrictor response of the pupil to a similar bright light stimulus was recorded for pupillary light reflex.

RESULTS AND DISCUSSION

A total of 18 Pugs, 14 Spitz, 13 Labrador Retrievers, 8 German Shepherds, 2 Rottweilers, 5 Dachshunds, 1 Boxer, 2 Basset Hounds, 2 Golden Retrievers, 4 Terrier breeds, and 11 nondescripts were subjected to the study, among which 20 (35 eyes) were positive for ocular affections. This included 9 (15 eyes) pugs, 1 (1 eye) Spitz, 4 (8 eyes) Labrador Retrievers, 1 (2 eyes) German Shepherd, 1 (2 eyes) Basset Hound, and 4 (7 eyes) nondescripts. It is interesting to note that among the owners of these twenty animals, only six came with ocular affections as their prime complaint.

Eye affections in pugs included dry eye, corneal pigmentation, traumatic proptosis, microphthalmos, conjunctival pigmentation, blepharitis, and corneal

Table 1: Prevalence of ocular conditions in different breeds

BREED	ANIMALS STUDIED	POSITIVE FOR OPHTHALMIC AFFECTIONS
Pugs	18	9
Labrador Retrievers	13	4
Spitz	14	1
German Shepherds	8	1
Non-Discripts	11	4
Dachshunds	5	0
Rottweilers	2	0
Boxers	1	0
Golden Retrievers	2	0
Terrier Breeds	4	0
Basset Hounds	2	1

ulcer. Labrador Retrievers presented had ectropion, congested scleral vessels, redness, and alopecia around their eyes. Basset hound had ectropion; German shepherd was brought with hyphema of traumatic origin in the right eye and cataract of the left eye. The only Spitz included in the study had conjunctival pigmentation of its right eye. Nondescript dogs were presented with scleral congestion, dry eye, and alopecia around the eyes.

Seven out of ten dry eye conditions were observed in pugs. A single case of blepharitis, corneal ulcer, and microphthalmos encountered in the study was also in pugs. Blepharitis was observed in a 3-year-old male Pug; a corneal ulcer in a 9-month-old male; and microphthalmos in a 7-month-old male Pug. Conjunctival

pigmentation was observed in a one-year-old female Pug, which was on moxifloxacin treatment for eyes for months. Conjunctival pigmentation was also observed in a 5-year-old male Spitz and a 5-year-old female Pug. Corneal pigmentation was observed in the right eye of a six-year-old male dog whose eyes were accidentally exposed to Volini Gel (containing Diclofenac, Linseed Oil, Menthol, and Methyl Salicylate). Engorged scleral vessels were noticed in a non-descript 6-year-old female dog with pyometra and a 1-year-old Labrador Retriever with ehrlichiosis. Redness and alopecia around the eyes were noted in dogs brought with skin infections and, in an animal suspected of hypothyroidism.

The probability for ocular affections to be appreciated by owners and

veterinarians is most in brachycephalic breeds (like Pugs here). It might be the lower sample size (n=1) of the Boxer breed that has made our observation contrary to the fact that Boxers too are amongst the most susceptible breeds for ophthalmic affections. From our study on dogs with conjunctival pigmentation, it is inferred that if the dog has some history of ocular irritation, conjunctival pigmentation shows its onset of development at a mean age of 5-6 years in small and medium-sized dogs breeds. The development of such pigmentation is shown to have no interference with the vision of the animals. From the cases suspected for pyometra and Ehrlichiosis, it is inferred that congested/engorged scleral vessels could be highly correlated with the onset of systemic infections in dogs.

Pugs are predisposed to conditions that include keratoconjunctivitis sicca, pigmentary keratitis, and ulcerative keratitis. Similarly, German Shepherds are susceptible to cataract. As per Miller (2008), Basset Hounds are predisposed to ectropion. All these data are in good agreement with our study findings. The lower sample size in our study has prevented us from linking all other predisposing conditions of different breeds to the results of our study. Microphthalmous is a condition in which the size of the eye is smaller than the normal. In addition to

occurring in a normally functioning eye with internal structures proportionate in size it also occurs in eyes with multiple ocular anomalies like cataract, retinal dysplasia, and anterior segment dysgenesis (Cook, 1995). This is in accordance with our study where it occurred in a 1-month-old male Pug suffering from Keratoconjunctivitis Sicca.

Brachycephalic ocular disease is the name given to the syndrome seen in brachycephalic animals, which often combines lesions of eyelids, conjunctiva, and cornea (Maggs, 2008). Dogs affected with this syndrome show various conformational abnormalities of the eye, including exophthalmos (abnormal protrusion of the eye), macro-palpebral fissure, and lagophthalmia (Maggs, 2008). Their abnormal facial conformation may lead to other problems also, including lower medial entropion, nasal fold trichiasis, distichiasis, poor tear production, and /or quality, pigmentary keratitis, or exposure keratopathy and epiphora (Maggs, 2008). This again is in correlation with our study, with pugs being the most vulnerable (50%) to ocular conditions. In pugs, the most commonly observed conditions in our study include corneal pigmentation, corneal opacity, and ulcerative keratitis which is similarly observed by Kreny *et al.* (2015) in their study.

Intraocular hemorrhage (hyphema) is not recorded to have occurred in animals without any history of trauma. As far as coagulation profile is normal it originates from a preiridial fibrovascular membrane harboring intraocular epithelial neoplasia or suffering from retinal detachment (Wilcock, 2008). Corneal pigmentation is likely to develop in animals that are subjected to any form of ocular irritation in the recent past. Pigmentation of the cornea is a non-specific biological response to various stimuli, including mechanical abrasion, immune-mediated keratitis, trauma, and tear film disorders (Labelle *et al.* 2013). The result of our study is in accordance with this as our subject developed corneal pigmentation in 2-3 months of exposure of the eye to an irritant chemical (Volini Gel). The animal was blind and lacked menace reflex, dazzle reflex, pupillary light reflex, and blink reflexes.

SUMMARY

The study revealed that less than 30% of owners were aware of any existing ocular affections of their dogs. It was observed that unless the condition is visually appreciable (like ectropion / hyphema here) it is not noticed by the owners. Hence a better concern regarding ocular affections could be incorporated into the minds of owners to avoid the potential risk of late observed ocular

abnormalities. Veterinarians too should be pre-equipped with the idea of latency of such conditions.

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