



## Incidence, diagnosis and management of eye affections in dogs

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### Abstract

A retrospective study of ocular affections in dogs was conducted at some selected clinics and hospitals in Southwest Nigeria between 2003 and, 2013 to determine the incidence, pattern of distribution, methods of diagnosis and treatment modalities using descriptive statistical tool. Overall incidence of eye affection in dogs was 6.62% with Alsatian breed being the most affected. Majority of ocular affections occurred in dogs less than 5 years of age with the eyelid/conjunctiva being the most affected anatomical location. Conjunctivitis was the most frequently diagnosed clinical condition. Sex wise more females were affected than males. Diagnosis was based on physical examination only in majority of cases with trauma being the most frequent cause of ocular affection. Majority of ocular affections were managed medically with gentamicin being the most prescribed medication while lid repair was the most performed surgery. Poor documentation and lack of facilities possibly affected the outcome of the investigation in the study location.

*Keywords:* Affection, Diagnosis, Dogs, Eye, Incidence, Management

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### Introduction

Affections of the eye constitute an important part of small and companion animal practice. The eye is a highly complex organ in terms of structure and function. It is a very sensitive organ, the function of which may be affected even with mild insult to its homeostasis, due to direct injury or due to other local or systemic diseases (Scountzou, 2003). Studies on the eye and its structures are considered important because of the greater skill and precision ocular interventions demand and also the need to prevent loss of vision. There is a great deal of interest in hereditary eye disease and its prevention by veterinarians and breeders because inherited eye disorders are much more common in the dog than any of the other domestic species (Slatter, 1990). Ocular studies are also justified by the need to prevent transmission of eye affections with potential to infect humans. There is abundance of literature on affections of the eye in the dog commonly encountered by practitioners. Of these, cornea and

lens conditions are the most important, since diseases of these structures directly affect vision (Gelatt & Mackay, 1998). Studies on ocular affections may provide information on prevalence of ocular diseases and also help to limit diagnostic possibilities and treatment options (Andrade *et al.*, 2005). To the best of our knowledge, reports on the incidence, diagnosis and management of eye affections in the dog has not been documented in spite of the ever-growing demand for dogs for security and companionship in Nigeria. This work presents a retrospective study that sought to determine the incidence, pattern of distribution, methods of diagnosis and management of eye affections in dogs in Southwest Nigeria.

### Materials and methods

Medical records from some selected private and state-owned veterinary clinics and hospitals in Oyo, Ogun and Lagos States of Southwest Nigeria were retrieved over a 10-year period (2003 - 2013), to

determine the incidence and pattern of distribution of ocular affections in dogs that were diagnosed and managed during the period under reference.

Referral hospitals and clinics that are predominantly small animal practice were included in the study. Data with respect to age, breed, sex, anatomic location of lesion, clinical categorization of lesion, method of diagnosis and treatment modality and outcome of dogs presented with ocular affection were obtained, collated and analyzed using descriptive statistical tool.

**Results**

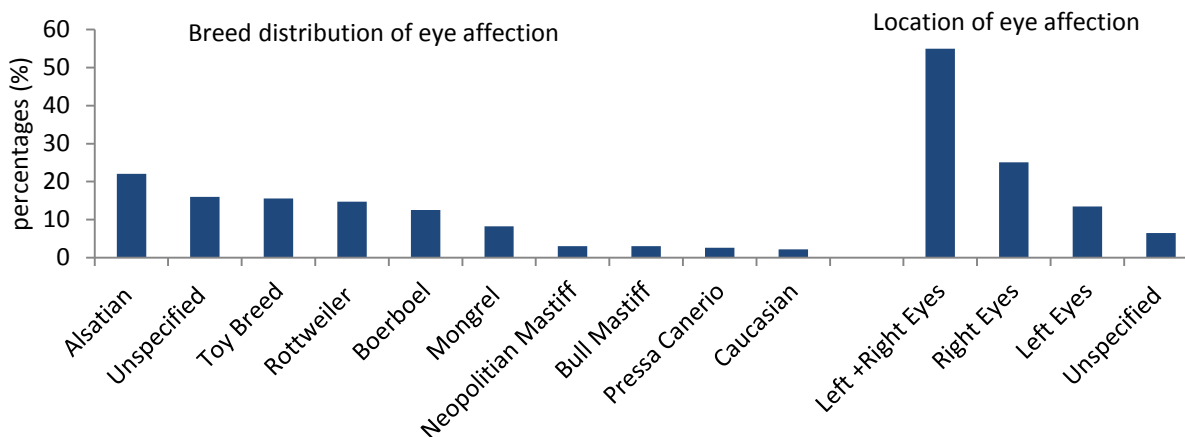
During the period under reference, a total of 231 cases of ocular affections were recorded out of a total number of 3,488 cases surveyed. Incidence of eye affections in dogs was 6.62%. Breed distribution revealed that Alsatian was the most affected (22.08%) while others such as Toy breed, Rottweiler, Boerboel and Mongrel were equally and moderately affected. Caucasian breed had the least incidence (2.16%). Breed affection was not specified in 16.02% of cases presented with eye affections. Among side wise affections, both eyes (54.98%) showed higher incidence than the right eye (21.11%) and left eyes (13.42%). (Figure I).

Sex, age distribution and causes of eye affections are presented in figure II. Sexwise, more females (42.42%) were affected than males (35.49%), Sex records were not documented in 22.08% of animals with eye affection surveyed. Age distribution showed that majority of cases (68.80%) was recorded in animals less than 5years of age. Older animals (>5years) were less affected (6.93%). Middle aged dogs (1-5years) appeared to be more prone to

eye affections than young (<1year) and older animals (>5years). The cause(s) of ocular affection was not specified in 60.61% of the cases audited while 35.05% and 4.33% were due to trauma (snake bite, dog bite, cage injury, gunshot wound) and systemic diseases respectively.

Figure III showed clinical categorization and anatomic classification of eye lesions. Based on anatomical location of ocular affections, highest incidence was of the eyelid or/and conjunctiva (58.01%) and to a less extent, the lens/globe (22.51%) and cornea (19.48%). Clinical categorization of ocular affections revealed highest incidence of conjunctivitis (30.30%), followed by proptosis/edema/swelling of the eye (22.94%) and corneal opacity (11.69%). Other conditions such as lid laceration, cherry eye, cataract, glaucoma, corneal ulcer, entropion and hyphema were equally represented in decreasing order of incidence. Records of clinical categorization of ocular affections were not specified in 3.03% of the cases surveyed.

Methods of diagnosis and management of eye affection are presented in Figure IV. Diagnosis of ocular affections was based only on physical examination/manipulation of the eye in 47.18% of the cases presented while diagnostic aids in form of ophthalmoscope, slitlight and tonometers were used in 22.08%, 13.85% and 9.96% of cases respectively. Majority (70.13%) of ocular affections surveyed were managed medically with gentamicin being the most prescribed antibiotic while 19.91% were surgically managed with lid repair being the most performed surgery.



**Figure I:** Breed distribution and location of eye affection

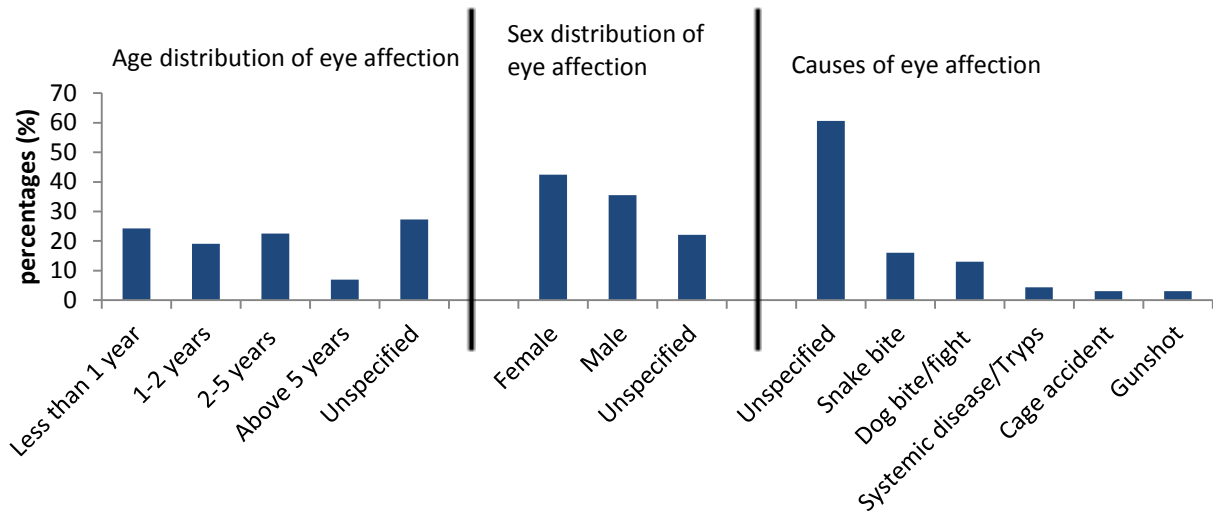


Figure II: Age, sex distribution and causes of eye affections

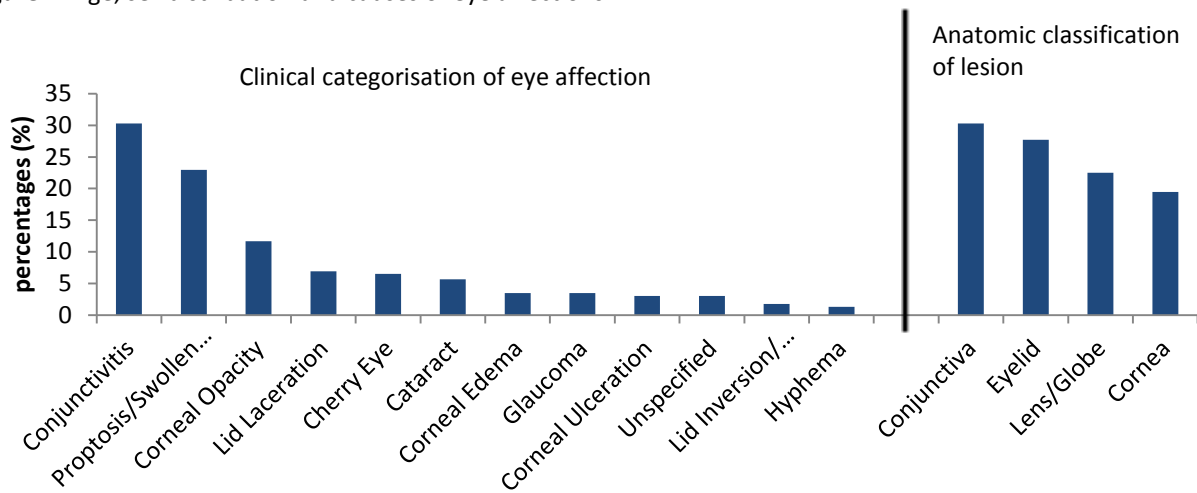


Figure III: Clinical categorization and anatomic classification of eye affections

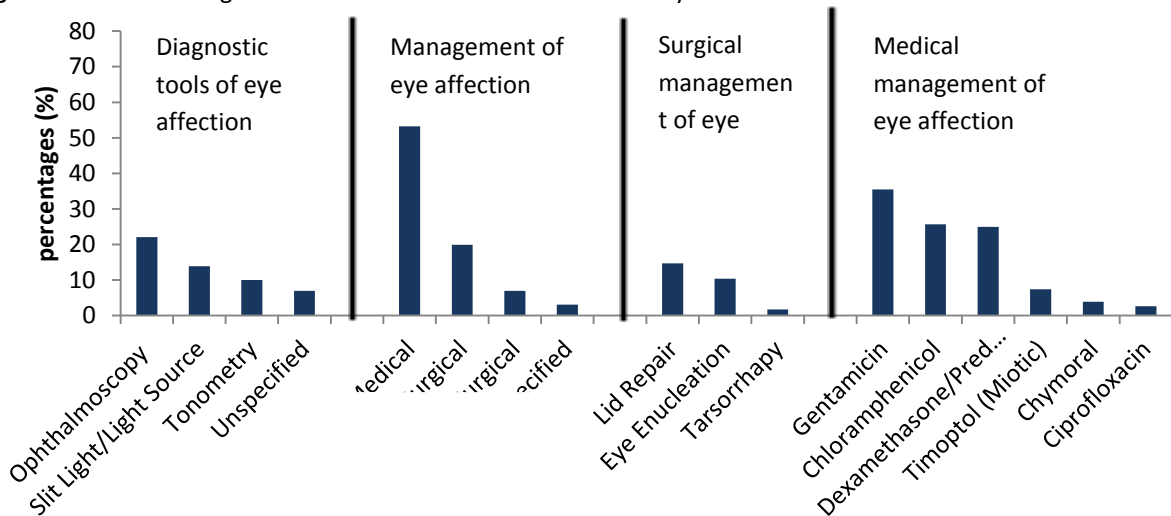


Figure IV: Diagnosis and management of ocular affections

## Discussion

During the period of 10 years from 2003-2013, a total of 231 cases of ocular affections were reported at the various clinics and hospitals investigated at the study location.

The diagnosis of ocular affections was based on clinical examination and manipulation in most cases and to a less extent, on the use of diagnostic aids such as ophthalmoscopes and tonometers.

Except for the last three years of this study (2010-2013), there was no dramatic change in the number of cases of ocular affection reported during the study. The observed increase in the number of animal presented with ocular affection may probably be due to increase in awareness on the part of dog owners and breeders following a heightened demand for dogs and acquisition of dogs in response to security and economic challenges. The overall incidence of ocular affection reported in this study was 6.62%. This finding was lower but comparable to 8.96% reported by Tyagi (2009).

In the presented study, significant number of documented cases (90.47%) occurred in dogs less than 5 years of age with 65.79% of them recorded in dogs less 2 years of age while only 6.93% recorded in animals >5 years. This is contrary to the observation or findings of Tyagi (2009) and Tamilmahan *et al.* (2013) both of which reported increased incidence with age >5 years.

It seems to us that the high incidence of ocular affection observed in young animals (<1 year) in this study may probably be due to preferential attention usually accorded to young exotic dogs that are most often acquired mostly for economic reasons in the study location.

Seasonal distribution of ocular affections could not be ascertained in this study due to absence of such documentation in the case records audited. However, study have shown higher incidence of ocular affections to be associated with unfavourable weather (Pratap *et al.*, 2005; Tamilmahan *et al.*, 2013).

The overall occurrence of ocular affection in dogs based on causes showed in majority of cases recorded, the causes were either unknown or not specified. Bite related injuries (dogs and snakes) however accounted for about 72.7% of causes of ocular affections recorded cases in which causes were specified. In related study on the occurrence of various ocular diseases in different domestic animals or species, traumatic injuries constituted the major causes of ocular affections (Kalaiselvan *et al.*, 2009).

Based on anatomic location and classification of lesions, the study revealed a variety of disorders, with the eyelid/conjunctiva having the highest incidence (58.01%) and to less extent the lens (22.51%) and cornea (19.48%). This is contrary to the findings of Sale *et al.* (2013) that reported highest incidence of lesion in the lens. Diagnosis is lesion affecting the lens and other internal structure of the eye requires greater professional skill and specialised equipment. These resources which are in short supply in the study location may have limited diagnostic capabilities.

Clinical categorization of ocular affections revealed multifarious conditions with conjunctivitis or unspecified cases having the highest incidence (30.30%) followed closely by proptosis/swollen eyeball with an incidence of 22.94%. In a similar studies, both Sale *et al.* (2013) and Tyagi (2009) reported age-related cataract as most common ocular affection in dogs. It is instructive to note that both studies also reported increased incidence with age and reported occurrence of ocular affection more in older (5 years and above) animals. Our study reported higher incidence in animals less than 5 years old.

A critical evaluation of the status of diagnostic and management practices revealed that diagnosis of ocular affections were made without the use of appropriate diagnostic aids and equipment. Similarly, majority of cases reported in the study were managed medically, which have been informed by resource constraints in terms of availability of highly skilled professionals and lack of and/or inadequate equipment to prosecute cases in which surgery may have been indicated. No special surgery requiring specialized equipment like an operating ophthalmoscope and phacoemulsification unit for cataract surgery was reported in this study.

This observation may suggest that serious cases with potential loss of vision were either not presented or not given appropriate therapeutic options due to lack of human and material resources. Expectedly, a wide range of antibiotics/antimicrobials were employed in the management of ocular affections in the study location, with gentamicin and chloramphenicol being the two most prescribed antibiotics.

In conclusion, our investigation has revealed poor documentation of cases on ocular affections presented at the study area. It also revealed lack of facilities in terms of appropriate instruments and

equipment for the diagnosis of ocular affections, this underscores the need for proper case documentation and availability of adequate and appropriate human and material resources for prompt resolution of diagnostic conflicts and proper management of ocular affections.

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