

SURGICAL BACTERIOLOGY AND GRADING OF CORNEAL ULCERS IN DOGS A RETROSPECTIVE STUDY IN 24 DOGS

C. Ramani¹, K. Rambabu², N. J. D'Souza³, S. Vairamuthu⁴, S. Subapriya⁵ and B. Justin William⁶

¹Professor, ²Ph.D Scholar, ³PG Scholar, Department of Veterinary Surgery & Radiology, ⁴Associate Professor and Head, ⁵Assistant Professor, Centralized Clinical Laboratory, ⁶Professor and Head, Department of Veterinary Surgery & Radiology, Madras Veterinary College, Chennai 600007, India.

Clinical data on incidence of corneal ulcers subjected to isolation of bacteria and antibiotic sensitivity test (ABST) was reviewed on 24 dogs after scrutinizing the medical record presented to ophthalmology unit, Department of Veterinary Surgery & Radiology, Madras Veterinary College, Teaching Hospital for a period of 2 years from January 2011 to December 2012. All dogs underwent general clinical examination history taking, a physical examination, thoracic radiography, complete blood count and serum chemistry to determine if any systemic diseases were present. All dogs received a detailed ophthalmic examination using indirect ophthalmoscopy, which revealed involvement of stroma. This was again confirmed with fluorescein dye staining (Miller et al., 2001). Grading of corneal ulcers with fluorescein dye test showed that the Grade III corneal ulcers are more represented followed by Grade II, Grade IV and Grade I corneal ulcers. The incidence of corneal ulcers with reference to age, breed, gender and involvement of one or both eyes were also analyzed. The age group between one to three years showed a higher incidence of corneal ulcers. The incidence of corneal ulcers was higher in the Pug. Male dogs were predominantly affected. Unilateral corneal ulcers were more common. A higher incidence was recorded in the right eye. The most commonly isolated bacteria from corneal culture was Staphylococcus spp., followed by Escherichia coli. Bacillus spp. The antibiotic sensitivity test revealed that the pathogens were more sensitive to Cefotaxime followed by Enrofloxacin. Tetracyclin. Gentamicin. Azithromycin and Amoxicillin. Corneal culture and sensitivity testing provided useful information for the diagnosis, determination of appropriate surgery and antimicrobial therapy in corneal diseases in dogs.

Key Words: corneal ulcer-grading-bacteriology- sensitivity drug

Introduction

Corneal ulcers in dogs are the most commonly encountered ocular diseases in veterinary ophthalmology. Corneal ulcer is break in continuity of corneal epithelium with or without loss of corneal stroma. (Slatter 2008). A detailed ophthalmic examination with indirect ophthalmoscope revealed involvement of stroma which was confirmed with the help of fluorescein dye test. (Miller 2001). Most studies have reported ocular diseases associated with age, breed, sex and treatment methods. The age group under 3 years (47%) showed a higher incidence of corneal ulcers (Kim *et al.*, 2009). The incidence of corneal ulcers was higher in males (60.2%) and Pug breed (37.26%) (Ramani *et al* 2012). The most commonly isolated bacteria from corneal culture was Staphylococcus spp. (40%) (Frank J. Ollivier 2003). Dogs with corneal ulcers (24 nos) brought to Madras Veterinary College Teaching Hospital is discussed in this study.

Materials and Methods

Clinical cases of corneal ulcers subjected to isolation of bacteria and antibiotic sensitivity test (ABST) was reviewed on 24

dogs after scrutinizing the medical record presented to ophthalmology unit, Department of Veterinary Surgery & Radiology, Madras Veterinary College, Teaching Hospital for a period of 2 years from January 2011 to December 2012. All dogs underwent general clinical examination history taking, a physical examination, thoracic radiography, complete blood count and serum chemistry to determine if any systemic diseases were present. In this work, we analyzed age, sex, breed, Corneal culture and antibiotic sensitivity test of corneal ulcers.

Results and Discussion

In this study corneal ulcers occurred 67% in male dogs and 33% in females. The breed wise incidence of corneal ulcers was higher in the Pug 33.3% followed by Labrador 16.6% Spitz 12.5%, Doberman 8.3%, Mastiff 8.3%, Boxer 8.3%. Where as Ramani *et al* (2012) found that the corneal ulcers occurred 60.2% in male dogs and 39.8% in females, the breed wise incidence of corneal ulcers was higher in the Pug 37.26% followed by Spitz 12.5%, Non Descript 16.7%, Boxer and Labrador both had

Fig 1 Corneal ulcer



Fig 2 Fluorescent dye test



Fig 3. Staphylococcus spp



Fig 4. ABST



the incidence of 4.94% ,Rottweiler, Great Dane & Pekingese three had incidence rate of 1.24% Dachshund, Bulldog, Beagle, Beagle and Cocker Spaniel had 0.62% of the incidence rate.

The age group between 1-3 years 50% showed a higher incidence of corneal ulcers followed by between 4-7 yrs 29.2 % ,above 8yrs 20.8 % .Where as Kim *et al.*, 2009 found that the corneal ulcers more in under 3yrs of age 47% followed by 3-6 yrs 28%, 6-9yrs 14% and 9-12yrs 9%.

Unilateral corneal ulcers were more common (75%). A higher incidence was recorded in the right eye. Grading of corneal ulcers with fluorescein dye test showed that the Grade III corneal ulcers are more represented followed by Grade II, Grade IV and Grade I corneal ulcers (Miller *et al.*, 2001).

The most commonly isolated bacteria from corneal culture was Staphylococcus spp. (54%), followed by Escherichia coli. (17%), Bacillus spp. (8%). Where as Frank J. Ollivier 2003 have reported Staphylococcus spp. (40%), followed by Streptococcus spp. (25%), including β - Streptococcus spp. (16%) and including α -Streptococcus spp. (9%) , Escherichia coli. (5%) Corynebacterium spp. (4%) and Klebsiella (1%).

The antibiotic sensitivity test revealed that the pathogens were more sensitive to Cefotaxime (68%) followed by Enrofloxacin, (52%). Tetracyclin, (47%). Gentamicin, (36%). Azithromycin (26%). and Amoxicillin (21%). In the present study, Corneal culture and sensitivity testing provided useful

information for the diagnosis, determination of appropriate surgery and antimicrobial therapy in corneal diseases in dogs.

Acknowledgement

The Authors grateful to the Director of Clinics, TANUVAS and the Dean, Madras Veterinary College for the facilities provided for the study.

References

Frank J. Ollivier: 2003. Bacterial Corneal Diseases in Dogs and Cats. Clinical Techniques in Small Animal Practice, Vol 18, No 3 pp 193-198.
Kim J. Y, Won H.J and Jeong S: 2009. A

Retrospective Study of Ulcerative Keratitis in 32 Dogs, Intern.J. Appl. Res. Vet. Med. Vol. 7, No. 1, pp 27-31.
Miller, W.W., (2001) Evaluation and management of corneal ulcerations. A systematic approach, Clin. Tech. Small Anim. Pract., **16**:51-57.
Ramani C, Manoj Kumar Ahirwar, Shafiuzama Md and Nagarajan L: 2012. Incidence of corneal ulcers in dogs. A Retrospective study. Tamilnadu J. Veterinary & Animal Sciences **8**(5)250-252.
Slatter, D.: 2008. Fundamental Veterinary Ophthalmology, (4th.ed). Philadelphia, PA, Saunders, pp. 175-202.
