JOURNAL OF VETERINARY AND APPLIED SCIENCES 2011 VOL. 1(1): 39 - 43

Manuscript No. JVAS/2012/003
Received: 20/04/2012; Accepted: 18/07/2012
Published by: Faculty of Veterinary Medicine, University of Nigeria, Nsukka, Nigeria.

PROLAPSE OF THE THIRD EYELID IN A NEAPOLITAN MASTIFF DOG – A CASE REPORT

Sunday O. Udegbunam[1*], Rita I. Udegbunam[1]., Theophilus O. Nnaji[1]., Austin C. Onuba[1]., Gregory E. Offor[1] and Innocent C. Nwogu[2]

[1]Department of Veterinary Surgery, [2]Department of Veterinary Anatomy,
University of Nigeria, Nsukka, Enugu State, Nigeria.

==========

INTRODUCTION

The eyes of dogs have third eyelids (nictitating membrane/membrane nictitans) located at the medial canthus between the eyeball and lids [1, 2]. The third eyelid is triangular in shape and supported by a T-shaped cartilage over which is the conjunctiva [1, 2]. Deeply located in the third eyelid is a seromucous gland which produces part of the basal tear film that lubricates the cornea and cleanses it of debris [2]. The common conditions encountered in this gland are inflammation, follicular conjunctivitis, nictitans neoplasms or nictitans prolapse/protrusion [1, 2]. A prolapsed superficial gland of the third eyelid appears as a bright red mass in the medial angle of the dog's eye and is nicknamed "cherry eye" [1, 2, 4]. "Cherry eye" is found commonly in Chihuahua, Beagles, Cocker spaniels, Boston terriers, Poodles, Lhasa apso and Pekingese less than one year old [1, 3, 5, 6].

This condition is treated either by surgical excision or by repair of the prolapsed superficial gland [1, 3, 7]. This paper describes, for the first time in southeastern Nigeria, a case of prolapse of the third eyelid in a Neaplolitan mastiff.

CASE HISTORY

A 9-month old female Neapolitan mastiff dog was presented at the University of Nigeria, Veterinary Teaching Hospital (UNVTH), Nsukka on 4/4/2008 as a referral case from Onitsha in Anambra State, with the principal complaint of having bilateral growing masses on the medial canthus of each eye. The masses were noticed about 5 months before the dog was presented to UNVTH for treatment. Prior to referral, the dog was treated with chloramphenicol and gentamycin eye ointments with no positive response.

CLINICAL EXAMINATION OF THE DOG

Physical Examination

Physical examination of the dog revealed that the medial canthus of each eye had protrusion of a reddish mass of soft tissue measuring 1.5 by 1.2 cm, mucoid ocular discharge and hyperaemic conjunctiva (Fig. 1). The dog was in good body condition and the visible mucous membranes were pink. As shown in Table 1, the weight of the dog was 28 kg, rectal temperature was 38.9^{0}C, heart rate 94 beats/min while respiratory rate was 24 breaths/min.

Correspondence: E-mail: sudegbunam@yahoo.com; Tel.: +2348068814217

Based on these observations, a differential diagnosis of prolapse and neoplasm of the nictitating membrane was made. Consequently, further haematological and histopathological investigations were recommended.

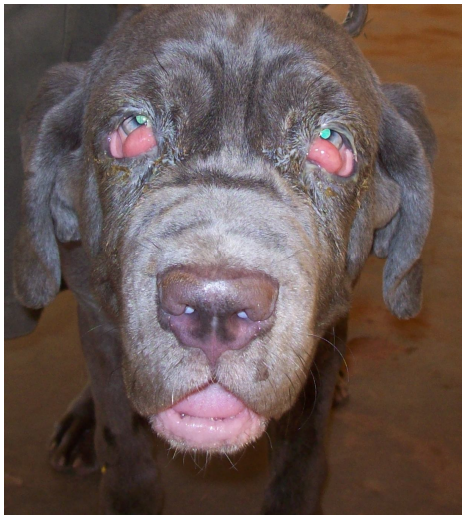


Fig. 1: Prolapsed third eyelids of the 9-month old dog (Neapolitan mastiff).

Fig. 2: The right eye of the dog, one week after excision of the third eyelid.

Table 1: Physical and haematological parameters of the dog with a third eyelid prolapse

Parameter	Estimate	Reference interval*
Body weight (kg)	28	-
Rectl temperature (^{0}C)	38.9	38.9 ± 0.5
Heart rate (beats/min)	94	70 - 120
Respiratory rate (breaths/min)	24	18 - 34
Packled cell volume (%)	23	37 - 55
Red blood cell count (x 10^{12}/L)	3.32	5.5 – 8.5
White blood cell count (x 10^9/L)	9.8	6 - 17
Neutrophil (x 10^9/L)	3.7	3 – 11.4
Lymphocyte (x 10^9/L)	5.5	1 – 4.8
Monocyte (x 10^9/L)	0.3	0.15 – 1.35
Eosinophil (x 10^9/L)	0.3	0.1 – 0.75

*Kahn [14]

Haematological Investigation

Blood sample from the cephalic vein was taken in ethylene diamine tetraacetic acid (EDTA) bottle for haematology and detection of haemoparasites. Packed cell volume (PCV) was determined using the

haematocrit method [8]. Red blood cell (RBC), white blood cell (WBC), and differential white blood cell (DWBC) counts were determined according to the method of Simpson [8].
Haematology revealed a low packed cell volume (23 %) and a lymphocytes count of 5.5 x 10^3/μL which was beyond the normal values for canine species (Table 1). The neutrophil, monocyte and eosinophil counts were within the normal range (Table 1).

Histopathology
A tissue biopsy from the third eye lid was collected and fixed in 10% formalin. The tissue was processed as described by Drury and Wallington [9]. Thin sections of the tissue were stained with haematoxylin and eosin and the slides examined with light microscope at x 200 magnification.

Histologic examination of tissue sections from the third eyelid revealed oedema of the periglandular tissue and expansion of the glandular lobules with lymphocytic infiltrates in a subacute non-suppurative adenitis (Fig. 3). Based on these histopathologic findings, the definitive diagnosis of prolapsed the third eyelid was made. Consequently, the surgical excision of the prolapsed tissues was recommended.

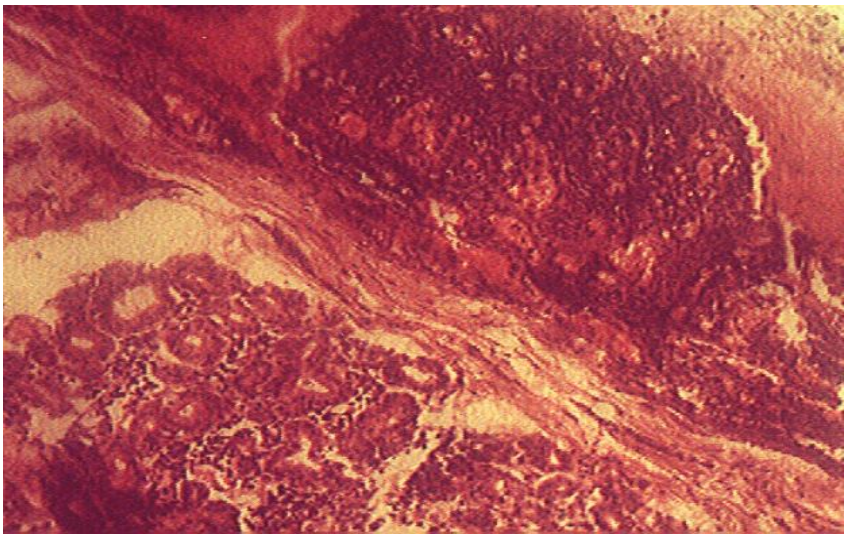
SURGICAL PROCEDURE
The dog was anaesthetized with pentobarbitone sodium (Sodium pentobarbitone, Kyron Lab. Ltd, Benrose) at 30 mg/kgn intravenously and prepared for aseptic surgery. Penicillin eye ointment (Penicillin ointment, MIM Pharma, Nigeria) was applied prior to surgery to form a protecting film on the eye. The base of the third eyelid was clamped with haemostatic forceps before it was excised with a scalpel blade. Thereafter, a simple continuous suture was placed with size 3/0 chromic catgut (Chromic catgut, Hospilabs Invest. Ltd, China) below the clamp to control haemorrhage. Few minutes was allowed for clotting to occur before removing the haemostatic forceps. The surgical procedure was carried out on the second eye at an interval of one week. Penicillin eye ointment was applied topically to the eye three times daily (t.i.d) for 7 days post-surgery. The dog was treated post-surgically with dexamethasone (Dexaphan®, Pharma Swede Ltd, Egypt 3mg/kg, i.m x 1/7), procaine penicillin (Procain penicillin, Helm pharmaceuticals GMBH, Germany, 10,000 i.μ/kg, i.m x 5/7) and streptomycin (Septocin®, Chupetpharma co. Ltd., China, 10 mg/kg, i.m x 5/7).

DISCUSSION
Prolapse of the superficial gland of the third eyelid ("cherry eye") is the most common primary disorder of the nictitating membrane [4]. A prolapsed gland of the third eyelid usually appears as a red mass at the medial canthus of the eye and presents the same clinical picture as a neoplasm [4]. This condition which may occur unilaterally or bilaterally [5,10,11], is thought to be due to weakness in the connective tissue attachment between the nicttitating membrane and the periorbital tissues [1,12,13]. The occurrence of ocular discharge and conjunctivitis in the eye of the dog may have been due to the long standing nature of the case [1].

The lymphocytosis reported could be attributed to the chronic inflammation of the prolapsed gland which led to massive lymphocytic infiltration of the glandular units [8, 15]. The low packed cell volume (PCV) was an indication that the dog was anaemic but of a moderate degree [16]. The reason for anemia in chronic diseases has been proffered [17].

The oedema of the periglandular tissue and expansion of the glandular lobules with lymphocytic infiltrates in a subacute non-suppurative adenitis has been described by Brooks [2] who noted that the gland of the third eyelid became hypertrophic on exposure to the external environment after prolapse. Also lymphocytic infiltration of the prolapsed glandular units of the third eyelid has been reported [2].

Fig. 3: Photomicrograph of a section of the third eyelid of the dog showing oedema of the periglandular tissue and expansion of the glandular lobules with lymphocytic infiltrates in a subacute non-suppurative adenitis. H & E x 200.



Treatment of this condition is recommended to avoid serious inflammation of the eye, purulent conjunctival and corneal perforation. We choose to excise the mass although surgical repair of the gland is widely advocated [1, 4, 18]. Our choice of excision for the correction of this present case was made since the gland prolapse was assessed to be incomplete so we assumed that the removal of the prolapsed portions of the glands will not completely impede tear production in the dog. Although excision of the third eyelid of dog is said to predispose about 20% of dogs so treated to keratoconjuctivitis sicca (dry eyes) [1,18]. Post operative report on the dog showed that since 2008 till date it has not had such complication and has had good vision. The reason for this observation on the present case may be that other glands (lacrimal gland and glands of Kraus and Wolfring) which produce the second tear film might have increased their tear production to compensate for the absence of the third eyelid gland [19].

Topical application of penicillin eye ointment post surgery provided antibiotic cover of the excision site. Procaine penicillin and streptomycin drug combination was used to protect the animal from gram positive and gram negative micro organisms likely to cause post operative wound infection. Dexamethasone, a glucocorticoid was given to reduce inflammatory process.

REFERENCES

1. Hamor, R. E. (2003). Third eyelid. In: Text Book of Small Animal Surgery Vol. II., 3rd Edn., Slatter, D. (Ed.). W. B. Saunders, Philadelphia. pp. 1361 – 1368.
2. Brooks, D. E. (1991). Canine conjunctiva and nictating membrane. In: Veterinary Ophthalmology, 2nd Edn., Gelatt, K. N. (Ed.). Lea and Febiger, Philadelphia. pp. 290 - 306.
3. Fossum, T. W., Hedlund, C. S., Hulse, D. A., Johnson, A. L., Seim, H. B., Willard, M. D. and Carroll, G. L. (2002). Surgery of the integumentary system. Small Animal Surgery 2nd Edn., Mosby Inc., Elseveier, St. Louis. pp. 123 -228.
4. Ward, D. A. (1999). Diseases and surgery of the canine nictating membrane. In: Veterinary Ophthalmology, 3rd Edn. Gelatt, K. N. (Ed.). Lippincott, Williams and Wilkins, Philadelphia. pp. 609 - 618.

5. Rubin, L. F. (1989). Inherited eye diseases in pure breed dogs. Williams and Wilkins, Baltimore.
6. Herrera, D. (2005). "Surgery of the Eyelids". *Proceedings of the 30th World Congress of the World Small Animal Veterinary Association*. http:www.vin.com/proceedings/Proceedings. (Retrieved 24 – 04 – 2007.
7. Roberts, S. R., Vierheller, R. C. and Lennox, W. R. (1974). The eyes. In: Canine surgery, Archibold, J. (Ed.). American Veterinary Publications Inc. pp. 193-262.
8. Simpson, G. (1996). Laboratory techniques. In: Practical Veterinary Nursing, 3rd Edn. British Small Animal Association, Kingsley house, Shuderyton. pp.116 - 169.
9. Drury, R. A. B. and Wallington, E. A. (1979). Cartlinton's histological technique, 4th Edn. Oxford University Press, United Kingdom.
10. Dugan, S. J., Severin, G. A., Hungerford, L. L., Whiteley, H. E. and Roberts, S. M. (1992). Clinical and histologic evaluation of the prolapsed third eyelid gland in dogs. Journal of American Veterinary Medical Association, 201: 1861 - 1867.
11. Morgan, R. V., Duddy, J. M. and MccLurg, K. (1993). Prolapse of the gland of the third eyelid in dogs: A retrospective study of 89 cases (1980 - 1990). Journal of American Hospital Association, 29: 56 - 60.
12. Severin, G. A. (1996). Severin ophthalmology notes. 3rd Edn. Veterinary Ophthalmology notes. Fort Collins Co. USA.
13. Albert, R. A., Garrett, P. D. and Whiteley, R. D. (1982). Surgical correction of everted third eyelid in two cats. Journal of American Veterinary Medical Association, 180: 763 - 766.
14. Kahn, C. M. (2005a). Reference guides. The Merck Veterinary manual, 9th Edn. Kahn, C. M. (Ed.). Merck and Co. Ltd, New Jersey, pp. 2582 - 2591.
15. Willard, M. D., Tvedten, H. and Turnwald, G. H. (1994a). Leukocyte disorders. In: Small Animal Clinical Diagnosis by Laboratory Methods, 2nd Edn. W. B. Saunders, Phoiladelphia.. pp. 53-79.
16. Willard, M. D., Tvedten, H. and Turnwald, G. H. (1994b). Erythrocyte Disorders. In: Small Animal Clinical Diagnosis by Laboratory Methods, 2nd Ed. W.B. Saunders, Philadelphia. pp. 31-51.
17. Kahn, C. M. (2005b). Haemapoeitic system . The Merck Veterinary manual, 9th Edn. Kahn, C.M. (Ed.). Merck and Co. Ltd, New Jersey, pp. 4 - 15.
18. Bromberg, N. (1980). The nictating membrane. Compendium of Continuing education for practicing Veterinarians, 2: 627 - 635.
19. Samuelson, D.A. (1999). Ophthalmic anatomy. Veterinary Ophthalmology, 3rd Edn. Gelatt, K. N. (Ed.). Lippincott, Williams and Wilkins, Philadelphia. pp. 31 - 145.