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A Case of Prolapsed Third Eyelid Gland in a Two Month Old Bull Mastiff

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Authors' contributions

This work was carried out in collaboration between all authors. Author UCO wrote the draft of the manuscript, designed the figures, managed literature searches and contributed to the correction of the draft. Author NNU contributed to the writing, correcting the manuscript and managed literature searches. Author JKT provided the case, corrected the manuscript and supervised the work. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Aim: To report the case of a prolapsed third eyelid gland in a bull mastiff in which surgical treatment using modified pocket technique was performed.
Presentation: A two month old, male, bull mastiff weighing 30 kg was presented with a pinkish fleshy mass of tissue protruding from the medial canthus of the left eye, conjunctivitis and ocular discharges. The condition was confirmed to be a prolapse of the third eyelid gland following clinical examination. The surgical reposition of the prolapsed gland using pocket technique was done.
Discussion: Cherry eye may occur secondary to inflammation and weakness of the supporting ligament that attaches the gland to its anatomical position. Surgical correction of the prolapse using

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pocket technique has been reported to be far better than excision method. The standard and established approach for pocket technique was followed. No surgical or anaesthetic complication was encountered.
Conclusion: The surgical reposition of the prolapsed gland was successful and no complications were encountered.

Keywords: Third eyelid gland; prolapsed; bull mastiff; surgical treatment; pocket technique.

1. INTRODUCTION

The third eyelid or nictitating membrane protects the globe by covering it when the animal blinks, fully or partially. It also acts as a windscreen wiper spreading the tear film evenly across the eyes in order to keep the cornea healthy [1]. The nictitans gland is positioned at the base of the third eyelid in the medial canthus and envelops the base of the upright T cartilage skeleton of the third eyelid. It is normally not visible as it is on the innermost surface of the third eyelid at its base and held in its position by a ligament. Glandular secretions are emptied into the conjunctival sac via many small ductules that open on the bulbar surface of the third eyelid amid follicles of lymphocytes and plasma cells [2,3,4]. The glands of the nictitans receive their blood supply and venous drainage via the nictitans arteries and veins. They are innervated by parasympathetic and sympathetic nerves. However, the primary control of aqueous tear secretion is via the parasympathetic nervous system [4]. The glands produce up to 25 - 40% of a tear film which is vital to the health of the surface of the eye [1,4,5].

Prolapse of the gland of the third eyelid (nictitans gland), referred to as cherry eye, is a common problem in several breeds of dogs such as Cocker Spaniel, Bull dog and less common in cats [2,6]. The primary cause of the prolapse of the third eyelid gland has not been scientifically reported [6,7,8]. However, it is believed to occur following inflammation and weakness of the supporting ligament that attaches the gland to its anatomical position, causing a protrusion of the gland and eversion of the third eyelid [8]. When a gland protrudes above the leading edge of the membrane, it appears red, enlarged and inflamed looking like a pink, fleshy mass [3]. Reduction of the tear production, persistent irritation, increased in size of the gland, ulceration, and kerato conjunctivitis sicca may occur if the membrana nictitans is allowed to stay in the prolapsed position for a long time [6,7].

Clinical problems associated with prolapsed gland include epiphora, conjunctivitis, and sudden development of a red mass at the medial canthus [7,9,10].

Medical treatment of the prolapsed gland such as the administration of antibiotic, steroidal or non steroidal anti inflammatory ophthalmic preparations has not recorded high success rate [11]. Therefore, surgery is used to salvage the condition. Choice of surgical techniques is a personal preference. Surgical repositioning of the gland is highly recommended [6,7]. Pocket technique, was used in this case due to its high success rate and reduced rate of post operative complications [7,8,9].

2. PRESENTATION OF CASE

2.1 Case History and Observation

A two month old male bull mastiff weighing 30kg, with a reddish protruding mass on the left eye was brought to the Small Animal Unit of Veterinary Teaching Hospital Micheal Okpara University of Agriculture Umudike. Clinical examinations indicated that the physiological parameters (heart, pulse respiratory rates, and rectal temperature) were within the physiological range for dogs. On physical examination, the dog was found alert, with a pinkish fleshy mass of tissue protruding from the medial canthus of the left eye (Fig. 1). Conjunctivitis and ocular discharges from the affected eye were also noticed.

History revealed that the dog had not had any eye problem before the appearance of pinkish fleshy mass on the medial canthus. Palpation of the affected eye was done to differentiate the prolapsed gland from eversion of the cartilage.

Diagnosis was done on the basis of history, physical and clinical examination of the prolapse of the gland of third eyelid. Diclofenac olphthalmic solution (Voltaren Ophtha, Novartis Pharmaceuticals Corporation East Hanover, New Jersey 07936), 1 drop 4 – 5 times daily for 4

Fig. 1. A-B) pre operative appearance of the prolapse gland of the third eyelid

days was prescribed but the lesion remained. Therefore, it was decided to repair the prolapse with pocket technique to reposition the gland.

3. TREATMENT

The dog was restrained and the area surrounding the eyes was cleaned with antiseptic solution. The dog was premedicated using atropine sulphate (Amopin, Yanzhou Xierkangtia Pharma CO. Ltd, Jiuguan Bei, Yanzhou China) 0.4 mg/kg body weight intramuscularly (IM) and xylazine (XYL M2, VMD. Hoge Mauw 900, B-2370 Arendonk Belgium) 1 mg/kg body weight IM, (1ml). General anaesthesia was induced with thiopentone sodium (Thiopental injection, Panpharma S.A France) 10 mg/kg body weight and maintained with Halothane (Halothane-Pharco, Pharco Pharmaceuticals, Alexandria).

The pocketing technique suggested by Moore [3] and modified by Morgan et al. [2] was used. The dog was placed on right lateral recumbence with the affected eye facing upward. The dog was carefully draped to expose only the palpebral opening. A stay suture was placed on the upper eyelid and anchored with forceps to expose the eye. The third eyelid was exteriorized with two stay sutures placed on the membrane. A stay suture was placed on the conjunctiva over the prolapsed gland and was used to manipulate the gland. Two curved incisions were made parallel on each side of the prolapsed gland on the bulbar side of the eyelid; One between the prolapsed gland and the free border of the third eyelid and the other ventromedial to the prolapsed gland creating a pocket of tissue. The stay suture on the gland was removed and the gland was pushed ventrally into a pocket using thumb forceps. The two cut edges of the conjunctiva were sutured with size 4/0 chromic catgut in a simple continuous suture patterns. The preliminary bite was taken on the palpebral surface of third eyelid and the suture also ended on the same surface. The knots were made on the palpebral surface of the third eyelid so that they do not irritate the ocular surface. A second line of suture was placed in the same pattern to strengthen the former one. Gaps were left at the ends of the suture line to allow secretions to drain. The stay sutures were removed after the surgery (Fig. 2).

Postoperatively, Elizabethan collar was applied to the dog for ten days to prevent self-trauma. Ophthalmic Antibiotic ointment (Benzyl penicillin potassium 5000 IU, Drugfield pharmaceutical ltd, Nigeria) was given 3 times a day for ten days. Also, the dog was administered diclofenac eye ointment (Voltaren Ophtha, Novartis Pharmaceuticals Corporation East Hanover, New Jersey 07936), 1 drop 4 – 5 times daily for 4 days. The dog was treated with systemic antibiotic, Penicillin + Streptomycine (Pen strep Hebei Yuanzheng Pharmaceutical Co ltd. Hebei, China) 1ml /25kg intramuscularly once daily for 7 days, Peroxicam (Yanzhou Xierkangtia pharma CO. Ltd, Jiuguan Bei, yanzhou China) at 0.2mg/kg body weight intramuscularly for 4 days and multivitamin (vitaflash® Kepro B.V Holland) 1 ml for 3 days. There were no postoperative complications and dog recovered uneventfully. The dog was discharged after 10 days and certified fit prior to clinical and physical examination after 90 days postoperative following scheduled visits to the clinic (Fig. 3).

4. DISCUSSION

Prolapse of the third eyelid gland is a rare canine case in Veterinary Hospitals in Abia State,

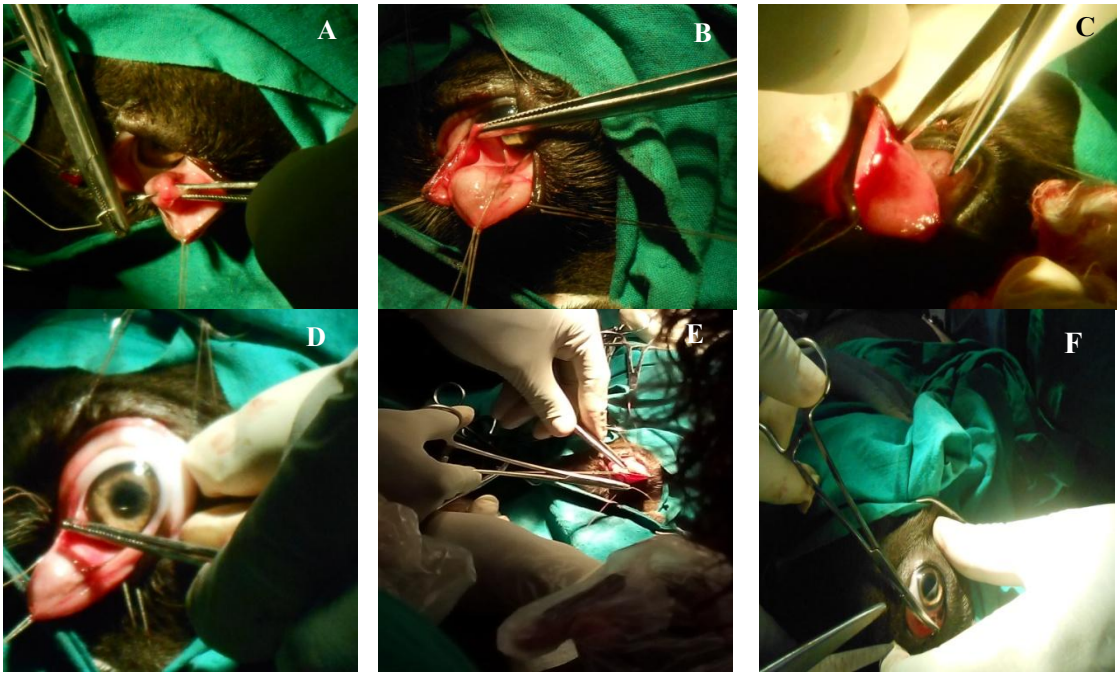

Fig. 2. Surgical procedures A) placing of stay sutures, B) exteriorizing the third eyelid with forceps and stay sutures, C) making parallel incisions anterior and posterior to the prolapsed gland, D -E) returning the gland to a normal position by apposing the incisions over the gland using a 2-layer simple continuous suture pattern, F) inspecting the eye after suturing

Fig. 3. A-B) post operative appearance of the affected eye after ten days

Nigeria. It is however possible that the condition had been presented in certain dogs, but had been overlooked by their owners.

It is a breed related condition. The bull mastiff breed is one of the breeds commonly affected with this condition. The prolapse is more frequent in young animals, up to two years of age, and may be uni- or bi-lateral in nature [1,2,12]. There are reports that surgical correction of the prolapsed third eyelid gland has been performed either by excising the third eyelid or by reconstruction of the third eyelid [7,9].

The pocket technique, a reconstructive technique, involves putting the gland back into place in a pocket of conjunctiva at the bulbar surface of the conjunctiva. This technique does not alter aqueous tear secretion and the morphology of the third eyelid gland duct [10,13]. In addition, the pocket technique requires less surgical time, is associated with fewer postoperative complications, and is less expensive than the excision techniques [14]. Thus, this procedure is preferred to the excision of the gland which results in a reduction in

aqueous tear production, dry eye and keratoconjunctivitis sicca [8,15]. However, it has been stated that complications such as the scrolling of the cartilage of the nictitans, reprolapse of the gland due to suture breakdown or leaving too large a gap at the ends of the incisions and cyst formation due to not leaving draining gaps at the ends of the suture line may be associated with the pocket technique [2,3]. This was prevented by the application of double suture line using chromic catgut and sizable gap for proper drainage was left at the end of the suture line. The double suture strengthened the suture while proper drainage prevented fluid accumulation and its resultant effect.

The use of Polyglactin 910 suture material in ophthalmic surgery is due to its slow absorption into the tissue which prevents suture break down. However, catgut suture may also be reliable as no suture break down was encountered in this case.

The application of atropine was used to reduce tear, salivary and bronchial secretions during anaesthesia. Piroxicam was used to reduce inflammation and pain. Pen strep (Penicillin + Streptomycine) was used to prevent secondary bacterial infection.

5. CONCLUSION

The pocket technique used in the correction of the prolapsed nictans gland is good. The surgery was well performed and no complication was encountered.

CONSENT

It is not applicable.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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