Prolapse of the third eyelid gland in dogs

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ABSTRACT
Prolapse is the protrusion of the gland of the third eyelid, in which, when it is exposed and moves out of its normal position, it is probably caused by laxity of the appendages, trauma, or primary or secondary adenitis. It manifests itself more frequently in young animals and has breeds more predisposed to its appearance such as English Bulldog, Cocker, Basset hound, Beagle, Pekingese and Boston. Clinical signs are the appearance of a reddish-pinkish, bulky mass located in the nasomedial corner of the eye, mucoid or serous discharge, and conjunctivitis. Diagnosis is made based on anamnesis, physical examination, and patient history. Treatment is based on fluorescein testing to identify corneal ulcers, if corneal ulcers are not identified, prophylactic preoperative management with antibiotic and/or anti-inflammatory eye drops, with subsequent repositioning of the third eyelid gland. The prognosis is good according to the technique chosen for each case and with good management during the patient's postoperative period.

Keywords: Eyes, Surgical technique, Conjunctiva, Nasomedial, Protrusion.

1 INTRODUCTION

The prolapse of the gland of the third eyelid is popularly called Cherry Eye, it manifests itself in young animals, under two years of age, there is no gender prevalence, with some breeds being more predisposed, such as the English Bulldog, Cocker, Basset hound, Beagle, Pekingese and the Boston. The protrusion is associated with the fragility of the ligament between the periorbital tissue of the third eyelid and the ventral connective tissue, and the appearance of the gland on the free edge of the eyelid,

thus leaving its normal position, suggesting that the connective tissue is poorly developed in affected dogs. Prolapse can also happen due to inflammation and edema of the gland, leading to its exposure in the nasomedial corner of the eye. Chemosis is a conjunctival edema that causes visible swelling (PEIXOTO, 2012; MUTARI, 2016, GELATT, 2003, FOSSUM, 2021).

The lacrimal gland of the third eyelid is lined with conjunctiva, when it is exposed it can suffer from dryness intensifying edema and inflammation. Due to their proximity to the cornea, changes in their surface can cause abrasion, favoring ulcerative keratitis. (WOUK, 2009).

Owners may notice a sudden mass on the third eyelid, eye discharge (serous or mucoid), and/or conjunctivitis. Diagnosis is made on the basis of history, physical examination, and clinical signs. It is worth emphasizing the importance of differential diagnoses, ruling out eversion of the third eyelid and neoplasms of the third eyelid, which can affect small animals (QUEIROZET, 2015; SANTOS, 2012; GELATT, 2003; PEIFFER, 1999; FOSSUM, 2021).

Surgical treatment to replace the lacrimal gland is the best option. Other treatments do not present satisfactory results, since the removal of the prolapsed lacrimal gland is not recommended due to the production of the aqueous fraction of the tear film, and its main consequence is keratoconjunctivitis sicca (FOSSUM, 2014; RANZANI et al., 2004).

The objective of this study was to perform a literature review on third eyelid gland prolapse in dogs, discussing the etiology, clinical signs, diagnosis and surgical treatment.

2 MATERIAL AND METHODS

The writing of this work was based on research in literature review articles, papers and course completion and case reports available on research sites, such as google scholar and digital book in pdf and physical, for the development of the subject regarding physiology, etiology, diagnosis, treatment and prognosis of third eyelid gland prolapse in dogs.

3 LITERATURE REVIEW

The third eyelid, also called the nictitating membrane, originates in the ventromedial portion of the orbit, is formed by a T-shaped cartilage and is covered by the conjunctiva, providing sustainability to the ocular set (FILHO, 2004; CUNHA, 2008). At its base, there is a gland considered as an accessory lacrimal gland, responsible for about 30% to 40% of the production of the aqueous fraction of the tear film (FILHO, 2004).

Prolapse and protrusion of the third eyelid gland are probably caused by laxity of the appendages between the third gland and the periorbit. Third eyelid gland prolapse usually occurs in the first few years of life as a primary disease with genetic risk factors. Trauma can also cause a prolapse of the third eyelid gland. Unusual contributing factors may be primary or secondary adenitis,

race-related abnormalities in the fascial adnexa, or specific pathogens affecting the glands. The disease is usually not caused by primary inflammation, neoplasia, or hyperplasia. It may involve the lacrimal gland and the third eyelid gland. The protruding, hypertrophied gland, which extends beyond the anterior border of the third eyelid, can become dry and excoriated, which causes secondary inflammation and swelling. Protrusion can be unilateral but tends to be bilateral (FOSSUM, 2021).

According to Fossum (2021), the common physical clinical finding is the visualization of a rounded-oval, pinkish, fleshy mass behind the margin of the third eyelid, near the medial canthus. As a clinical symptomatology of the protrusion of the lacrimal gland of the third eyelid, animals may present conjunctivitis, decreased tear production, increased volume, pinkish-reddish color in the medial canthus of the eye, and mucoid ocular discharge (SANTOS, 2012; CUNHA, 2008; BRANDÃO, 2007; HENDRIX, 2007).

The diagnosis is made based on anamnesis, clinical signs and physical examination (PEIFFER, 1999), visualizing the protruding, swollen, hyperemic third eyelid gland in the patient's nasomedial corner (STANLEY, 2007). Differential diagnoses include third eyelid neoplasia, adenitis, lymphoid follicle hyperplasia, third eyelid elevation (Horner's syndrome, Haws syndrome, and enophthalmos), cyst, third eyelid cartilage eversion, and third eyelid malformation (FOSSUM, 2021).

Drug treatment controls the inflammatory process, but the desired result is not obtained, the gland in the appropriate anatomical location. Therefore, surgical treatment is indicated (SANTOS, 2012; CUNHA, 2008).

The goals of surgical treatment are to relocate the protruding gland to its normal anatomical position in the third bulbar eyelid, maintaining the mobility of this structure and preserving the glandular tissue and excretory ducts. The techniques described include the creation of an envelope or pocket in the adjacent conjunctiva and its covering, with or without scarification of the gland surface. In addition to pocket procedures, anchoring of the third eyelid to the base of its cartilage, extraocular muscles, sclera, periorbital fascia, or periorbital bone border has been described (FOSSUM, 2021).

Morgan's technique begins by pulling the third eyelid and thus exposing the bulbar face using two Halsted forceps and then making two incisions in the bulbar conjunctiva, one rostral and the other distal to the prolapsed gland, they must be parallel to the free margin of the membrane, this incision is made at a distance of 2 to 3 mm from the gland, and from the distal one is performed from 6 to 7 mm towards the base of the third eyelid, where the two incisions should be approximately 1 cm long, after which two conjunctival incisions are made where they are sutured in a simple continuous pattern using an absorbable 6-0 polyglactin 910 thread or polyglycolic acid. It is extremely important to start the stitch on the eyelid surface of the nictitating membrane and then direct the needle of the thread and emerge on the bulbar surface, thus performing the simple continuous suture, thus obtaining the gland reduced to a conjunctival pocket, in which the needle must be directed again on the eyelid surface to

finish the suture knot. The correct positioning of the nodes from beginning to end of the continuous suture of the palpebral surface of the nictitating membrane prevents them from being in direct contact with the cornea and thus causing chronic irritation, which can cause corneal ulcerations (MORGAN, 1993; LACKNER, 2001).

The repositioning of the gland through the technique that the surgeon will choose is something personal, since the Morgan and Moore pocket techniques can be considered easy to learn, but the anchorage techniques when you have mastery, are quick and simple to be performed, there are studies that have shown greater chances of recurrences. The pocket technique is more commonly used in relation to anchoring techniques because, after its execution, it forms a protection over the gland, favoring its recovery, keeping it fixed in its topography so that it can once again perform its function in tear production (HENDRIX, 2007).

Anchorage procedures interfere with the mobility of the third eyelid, while pocket procedures can damage the excretory ducts. Combined pocket and pleating procedures may be more successful on larger, more chronic protrusions than pocket procedures alone. Pocket procedures without pleating may be more effective in young animals and those with mild protrusions (FOSSUM, 2021).

It is noteworthy that the success of surgical treatment is also linked to postoperative care, with the use of antibiotic and anti-inflammatory eye drops, being instilled in the established time interval, systemic analgesics, and the use of the Elizabethan collar to avoid trauma and self-mutilation (PEIXOTO, 2012).

If the cornea is fluorescein-negative and the gland is swollen, topical antibiotic preparations with corticosteroids can be used to reduce swelling and gland size of the prolapsed third eyelid (FOSSUM, 2021). In ophthalmology, the use of topical antibiotics is part of the therapeutic routine, with quinolones, aminoglycosides, tetracyclines and polymyxin B being the most used groups (ANDRADE, 2008 and WEBSTER, 2005).

According to Fossum (2021), in the preparation of the surgical site, prophylactic ointment or broad-spectrum antibiotic eye drops can be used, such as those based on neomycin, polymyxin, bactracin, to keep corneal surfaces lubricated and reduce bacteria (FOSSUM, 2021). Complications are the exposure of the suture to the surface of the cornea, causing ulceration, and dehiscence of the incision or formation of holes in the conjunctival pocket, which allows repeated prolapse of the third eyelid gland (FOSSUM, 2021).

The prognosis of gland replacement with the pocket procedure may be good. Deformation of the margin of the third eyelid and visible tissue thickening at the base of the gland may occur after surgery, especially if the gland is very large. Recurrence may occur in animals less than five months of age undergoing surgery. Recurrence may require another surgery to attempt to reposition the gland (SLATTER, 2001; FILHO, 2004; FOSSUM, 2021).

4 FINAL THOUGHTS

The prolapse of the gland of the third eyelid, also known as cherry eye, probably occurs due to the lassitude of the appendages between the third gland and the periorbit, trauma, primary or secondary adenitis, among others, but its etiology is not very well understood. It is a common condition among dogs and of relevant importance in medical and surgical clinics, as it causes discomfort and can generate ulcerations and/or secondary infections in the cornea as well as be due to genetic factors that in the future may develop another type of problem in the patient, leaving a warning for both professionals and tutors. Surgical treatment in this case is strongly indicated since it repositions the gland and provides comfort to the patient and consequently to the owner.

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