



Marsupialization for the treatment of nictitating membrane cyst in a dog: case report

[*Marsupialização para o tratamento de cisto em membrana nictitante de cão: relato de caso*]

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ABSTRACT

This study aims to describe the first Brazilian report of a nictitating membrane cyst's surgical treatment in a dog. A 6-month-old female French Bulldog presented at HOSVET-UNIME with a reddish mass-like structure in the medial canthus of both eyes, with a history of recurrent third eyelid gland prolapse previously treated with two surgeries performed at another clinic. Physical examination revealed a third eyelid gland prolapse in the right eye and a cyst in the left eye's third eyelid. The animal was submitted to surgical correction of the right eye's third eyelid prolapse using pocket technique and of the left eye's third eyelid using marsupialization technique for the cyst's treatment. 180 days after the surgical procedure no recurrence was observed. The marsupialization technique for the treatment of a third eyelid's lacrimal cyst in a dog allowed the maintenance of its gland and prevented the formation of a new cystic cavity.

Keywords: canine, conjunctival pocket, third eyelid gland prolapsed, ophthalmology

RESUMO

O objetivo do presente trabalho é descrever o primeiro relato no Brasil de tratamento cirúrgico de um cisto da membrana nictitante em um cão. Um Buldogue Francês, fêmea, seis meses, foi atendido no Hosvet-Unime, com queixa de aumento de volume avermelhado no canto medial de ambos os olhos, com histórico de recidiva de prolapso de glândula da terceira pálpebra, onde haviam sido realizadas duas cirurgias anteriormente em outro local. Ao exame físico, foi observado prolapso de glândula da terceira pálpebra no olho direito e a presença de um cisto na terceira pálpebra do olho esquerdo. O animal foi submetido ao procedimento cirúrgico de sepultamento de glândula da terceira pálpebra no olho direito e uma marsupialização na terceira pálpebra do olho esquerdo para o tratamento do cisto. Cento e oitenta dias após o procedimento cirúrgico, não foi observada recidiva. A técnica de marsupialização para tratamento de cisto lacrimal na terceira pálpebra em um cão possibilitou a manutenção da sua glândula e impediu a formação de nova cavidade cística.

Palavras-chave: canino, pocket conjuntival, prolapso de glândula de terceira pálpebra, oftalmologia

INTRODUCTION

Nictitating gland prolapse is common in dogs and usually occurs due to a connective tissue fragility, which allows dorsal displacement and glandular exposure, with consequent

inflammation (Hendrix, 2013). Surgical replacement should be performed early to avoid damage to lacrimal production. Several techniques have been reported, such as the conjunctival pocket technique and anchor sutures, which, when correctly performed following a good post-operative care, decreases the chances of complications (Peixoto and

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Galera, 2012; Multari *et al.*, 2016), such as suture dehiscence, recurrent gland prolapses, and, rarely, the development of cysts (Hendrix, 2013).

The cystic lesions involving lacrimal tissue may originate from the nictitating membrane's superficial gland (Moore, 1999), may be congenital (Lamagna *et al.*, 2012) traumatic or inflammatory (Hendrix, 2013). The cyst distends the conjunctiva and protrudes into the palpebral fissure (Barbé *et al.*, 2016).

Treatment options described in the literature include surgical excision of the cyst with the lacrimal gland (Playter and Adams, 1977), which would reduce quality and lacrimal production in dogs (Saito *et al.*, 2001). Therefore, the marsupialization technique consists of creating a communication between the cyst and the external environment, which has been reported in three dogs (Barbé *et al.*, 2017). The present study aims to report the application of the marsupialization technique for the treatment of a nictitating membrane's lacrimal cyst in a dog.

CASUISTRY

A 6-month-old female French Bulldog, 6.9kg, presented at the Veterinary Hospital of Unime – Bahia with a reddish mass-like structure in the medial canthus of both eyes, discomfort, and ocular secretion. The owner reported a two-time recurrent gland prolapse of the third eyelid in both eyes after surgeries performed previously for repositioning, with the last one performed two months ago. Based on the reported description, it was concluded that the technique performed was the pocket conjunctival technique in both attempts. The patient was being treated with diclofenac-based eye drops (Still®, Allergan, Brazil), twice a day in both eyes and antibiotic-based ointment with retinol acetate, amino acids and chloramphenicol (Regencel®, Latinofarma, Brazil), three times a day in both eyes.

Clinically the patient was in good condition and physiological parameters were within the normal range. Ophthalmic examination revealed a third eyelid gland prolapse on the right eye (Figure 1.A) and a cystic appearance mass on the eyelid surface of the third eyelid of the left eye (Figure 1B). In addition, a slight euryblepharon was

noted, contributing to a larger exposure of the conjunctival surface in the medial canthus. Results of the Schirmer test were 19mm/min OS and 21mm/min OD. No other changes were noted in the other ocular and periocular structures.

Laboratory tests (hemogram, ALT, AP, urea and creatinine) and electrocardiogram were requested, which did not show any abnormalities. The patient was referred for surgical exploration and correction of the abnormalities. Cyst marsupialization (OS), pocket technique of the third eyelid gland (OD) and medial canthoplasty (OU) were used to correct the euryblepharon. Meperidine (Mytedom®), 4mg/kg/IM, was the pre-anesthetic medication used Cristalia, Brazil. The induction was performed with propofol (Propovan®, Cristalia, Brazil), 5mg/kg/IV and maintenance was conducted in a semi-open circuit with isoflurane (Isoforine® Cristalia, Brazil).

Trichotomy of the entire periocular surface was performed and the patient was placed into ventral decubitus position with maintenance of head elevation by padded support. Ocular surface antiseptics was performed with aqueous PVPI-I solution 0.5% (topical 10% Iodopovidone; Vic Pharma, Brazil) (1:20 dilution) and periocular surface antiseptics was carried out with PVP-I at 10%, followed by instillation of anesthetic eye drops composed of tetracaine and phenylephrine (Anestesico®; Allergan, Brazil).

After field cloths were placed, the left nictitating membrane was protracted by stay sutures, using 4-0 nylon (Nylon®, Procure, Medical Co. Ltd, China). The palpebral surface of the third eyelid was then exposed and the contents were drained with a 3ml syringe and a 21G needle. The cyst's contents were sent for cytological evaluation. A small incision with a number 11 scalpel blade was performed over the cyst. Blunt dissection of the conjunctiva was followed, bordering the hyaline cartilage until the edge of the cyst was visualized. To avoid recurrence, marsupialization was performed, where the cavity edges were sutured to the third eyelid's conjunctival epithelium of the palpebral surface, with Glycomer™ 631 6-0 (Biosyn, Medtronic, Brazil), in a simple interrupted pattern, in order to maintain a patent opening (Figure 1.C). Continuous, upper and lower lacrimal points

were identified and cannulated, delimiting the palpebral margins that were excised. The tarsoconjunctival layer was positioned (medial canthoplasty) using simple interrupted suture with 5-0 nylon (Figure 1.D). The contralateral eye was prepared identically and a conjunctival pocket technique was performed (Morgan *et al.*, 1993), also followed by medial cantoplasty.

The postoperative prescription consisted of oral 0.1mg/kg of meloxicam (Maxicam®; Ouro Fino Animal Health Ltda., Brazil) once a day for 5 days, tobramycin 0.3% (Tobrex®; Alcon, Brazil) eye drops three times a day for 7 days in the left eye, and ketorolac tromethamine (Acular®; Allergan, Brasil) eye drops four times a day for 7 days, in both eyes, and continuous use of the Elizabethan collar. The drained content was similar to tear due to its physical characteristics and crystallization on a glass blade with a dense

lacrimal pattern, presenting several multi-branched crystals, with no empty spaces between them. There were still very rare intact neutrophils and anucleate keratinocytes. No microorganisms were isolated from the sample.

At one week postoperative evaluation the animal had no ocular discomfort or secretion and the surgery site did not present complications. After two weeks the sutures of the canthoplasty were removed and the nictitating membrane's healing progressed well. At three weeks, the third eyelid remained unchanged. Schirmer test was 22mm/min OE and 21mm/min OD. Clinical evaluation at 180 days and at 1 year after the surgical procedure were performed. Marsupialization in the third eyelid of the left eye was maintained and no recurrence was noticed in both eyes (Figure 1.E).

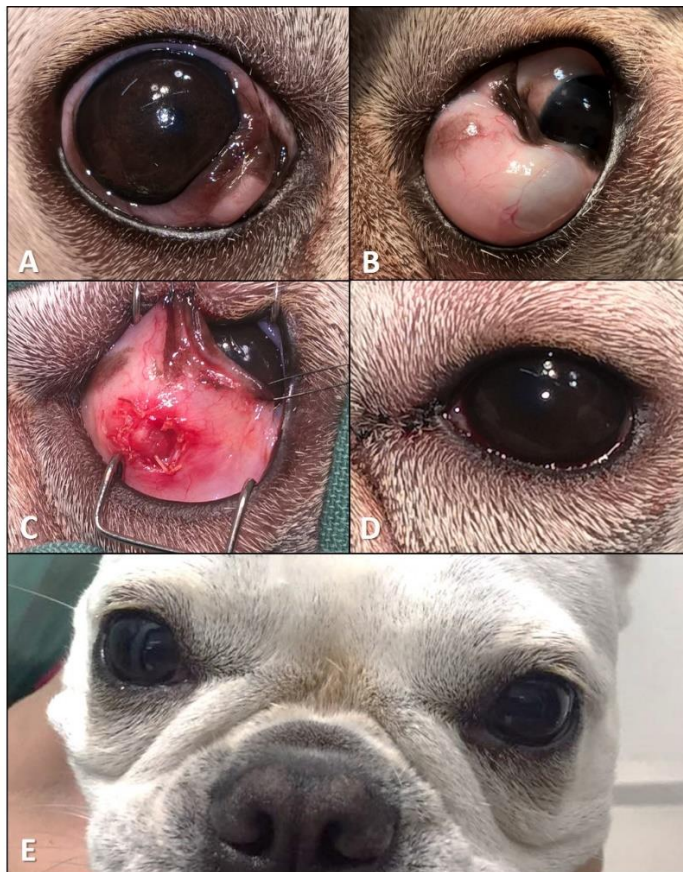


Figure 1. A- Right eye demonstrating third eyelid gland prolapse. B- Left eye demonstrating a cyst in the third eyelid. C- Intraoperative appearance after marsupialization in the left eye. D- Final appearance of the left eye after the surgical procedures of marsupialization and medial canthoplasty. E- Aspect of both eyes one year after surgery.

DISCUSSION

Lacrimal cyst formation is rare in humans and animals and can occur in any portion containing tear producing glandular tissue (Moore, 1999). Studies show that in 155 cases of nictating membrane gland prolapse in dogs there was only one report of cyst (Mazzucchelli *et al.*, 2012). In Brazil, in a series of 67 cases of third eyelid gland prolapse, none observed cystic formation (Peixoto and Galera, 2012).

Mazzucchelli *et al.* (2012) reported a higher occurrence of third eyelid gland prolapse in brachycephalic breeds, including Bulldogs. Of the three dogs that had third eyelid cyst described by Barbé *et al.* (2017) two of them were English Bulldogs and one was a French Bulldog, the same breed of the animal in this paper. This condition is mainly attributed to iatrogenic damage of the repositioning procedure of the third eyelid gland through conjunctival pocket technique (Hendrix, 2013).

It is believed that the higher casuistry of prolapse and relapse in these breeds is due to their morphological (shallow orbit, euryblepharon and ectropion) and behavioral characteristics, which predispose this occurrence. Consequently, greater local manipulation in an attempt to reposition the gland contributes to cyst formation. However, it can also occur due to trauma caused by surgical dissection or duct inflammation during the postoperative wound healing process (Lamagna *et al.*, 2012).

The clinical signs observed in the present report were notably ocular secretion, discomfort and a reddish mass-like structure in the medial eye canthus, cited by Barbé *et al.* (2017) in 3 dogs with third eyelid cyst. It should be noted that these are non-specific signs and should be evaluated in conjunction with other findings in ocular semiology. Presumptive cyst diagnosis was obtained through direct visualization of the affected eye, especially after third eyelid traction. Nevertheless differential diagnosis should be considered. Among them, epithelial, epidermoid or parasitic cyst, abscess, reaction to suture yarn and neoplasia, which are defined by tear

analysis, culture and antibiogram, and histopathological examination (Barbé *et al.*, 2017). Furthermore, history analysis and clinical presentation of a sterile crystallized liquid characteristic of tear marks the basis for a definitive diagnosis, as observed by Barbé *et al.* (2017).

Lacrimal cystic lesions in human's conjunctiva can be removed en bloc without significant change in lacrimal quality (Playter and Adams, 1977). Unlike man, who has the main lacrimal gland and several other attachments arranged along the conjunctiva, lacrimal production in dogs is maintained by the main lacrimal gland (about 60%) and the third eyelid gland (about 40%) (Gelatt and Brooks, 2011). Thus, cyst excision along the third eyelid gland can compromise the lacrimal quality in the medium and long term (Saito *et al.*, 2001), causing keratoconjunctivitis sicca (Pantaleoni *et al.*, 1997). Therefore, the salvation technique described by Barbé *et al.*, (2017) was used in this case for lacrimal gland preservation.

Drainage can be performed by aspiration using needle and syringe, with the administration of anti-inflammatory eye drops. However, recurrence is constant (Barbé *et al.*, 2017). The definitive technique to avoid recurrence is marsupialization, which consists in creating a communication between the cyst and the external environment. This technique is already well described for the treatment of lachrymal cysts in humans with no need of en bloc resection (Playter and Adams, 1977; Salam *et al.*, 2012), being described as having been performed in only three dogs to date by Barbé *et al.* (2017), with satisfactory results. Similarly, the technique used in this case showed great results regarding gland maintenance, lacrimal production and aesthetics, being the first report of this type in Brazil.

CONCLUSIONS

The marsupialization technique for the treatment of lacrimal cyst in the third eyelid in dogs allowed the maintenance of its gland and prevented the formation of a new cystic cavity.

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