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Surgical treatment of prolapsed nictitating membrane gland with Morgan's Pocket technique on kintamani dog

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ABSTRACT: Prolapsed nictitating membrane gland, or "cherry eye," is a common ocular condition in dogs, characterized by protrusion of the third eyelid gland due to weakened connective tissue, often causing inflammation and infection. A 1-year-old, 11 kg male Kintamani dog presented with a persistent reddish mass protruding from the corner of the right eye for three months. Clinical examination, history, and physical findings confirmed nictitating membrane prolapse (cherry eye), with a favorable prognosis. Cherry eye occurs when the gland of the third eyelid prolapses from its normal position, forming a swollen red mass at the medial canthus. Surgical correction was performed using the Morgan's pocket technique. The dog was premedicated with atropine sulfate, and anesthesia was induced using xylazine and ketamine. The prolapsed gland was repositioned between the two incision lines with gentle downward pressure and then sutured using 4-0 PGA (Assucryl®) in a simple continuous pattern. Postoperative care included antibiotic and anti-inflammatory eye drops (Cendo Xitrol®: Neomycin Sulfate, Polymyxin B Sulfate, Dexamethasone) and oral meloxicam for analgesia. By day 13 post-surgery, the eye had fully recovered, with no signs of recurrence or complications.

Keywords:
cherry eye, Morgan's Pocket, prolapse, reposition

■ INTRODUCTION

Nictitating membrane gland prolapse ("cherry eye") is a condition in which the third eyelid gland protrudes, appearing as a swollen reddish mass at the medial canthus. The cause is believed to be weakened connective tissue attachment between the ventral membrane and periorbital structures, leading to gland displacement and swelling (Dewangan *et al*. 2018). It is more prevalent in dogs and can be unilateral or bilateral (Oguntoye *et al*. 2022), typically affecting dogs between four weeks and two years of age. Various surgical techniques have been developed and categorized into methods that anchor the gland to adjacent structures or create a conjunctival pocket to reposition the gland. Total gland excision is sometimes considered; however, the risk of developing keratoconjunctivitis sicca (Oguntoye *et al*. 2022). In Indonesia, research on cherry-eye management is limited, with one study reporting surgical treatment using anchoring techniques in a beagle (Utomo *et al*. 2022). The Kintamani, or Kintamani-Bali Dog, is a breed native to Bali and developed from local street dogs. This paper presents a case of nictitating membrane gland prolapse in a Kintamani dog that was successfully treated using Morgan's pocket technique.

■ CASE

Anamnesis and Signalment: A 1-year-old male Kintamani mixed-breed dog, weighing 11 kg, presented with a reddish mass protruding from the medial canthus of the right eye for the past three months (Figure 1). **Physical Examination**: The dogs' vital signs were within normal limits: heart rate, 128 bpm; pulse rate, 128 bpm; respiratory rate, 32 breaths/min; capillary refill time (CRT) less than 2 s; body temperature, 39°C; and normal mucous membranes. Neurological responses, including menace response and pupillary light reflex, were intact. The dog showed no pain upon palpation of the mass. A complete blood count (CBC) was performed to assess hematological parameters. **Diagnosis**: Nictitating membrane gland prolapse (cherry eye). **Prognosis**: Fausta. **Treatment**: Surgical repositioning of the prolapsed gland was performed using Morgan's pocket technique. The dog was positioned laterally, with the affected eye facing upward, for optimal surgical access (Figure 2). The premedication used was atropine sulfate (0.04 mg/kg BW) SC, which was

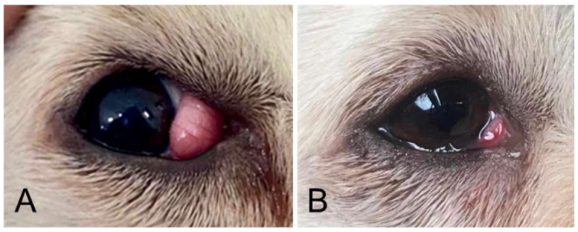

Figure 1. Surgical treatment of prolapsed nictitating membrane gland with Morgan's pocket technique on a Kintamani dog. (A) before surgery and (B) 3 days after surgery.

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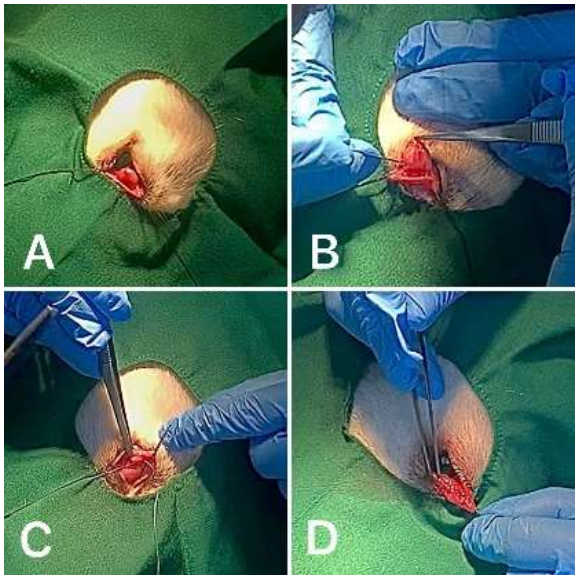

Figure 2 Repositioning process for cherry-eye condition. (A) Making a stay suture with silk thread, (B) making an incision in the medial and lateral parts of the nictitan membrane gland, (C) compressing the nictitan membrane gland and suturing in a continuous pattern, and (D) results after suturing.

induced with xylazine (2 mg/kg BW) and ketamine (10 mg/kg BW) IM. The eyes were cleaned with NaCl and a sterile drape was placed over the eye. The nictitating membrane gland was fixed and gently stretched outward using a stay suture made with silk 3/0, and pulled with forceps to expose a wider surgical area. An incision was made in the bulbar conjunctiva of the third eyelid by using a blade at the anterior and posterior parts of the prolapsed gland to create a pocket (Gelatt & Gelatt 2011). The gland was repositioned to its normal position between the two incision lines by applying slight downward pressure, followed by suturing the incision using 4/0 Polyglycolic Acid (PGA) (Assucryl®) in a simple continuous pattern. The knots at the beginning and end of the sutures were placed on the underside of the palpebral surface of the third eyelid. **Post-operative Treatment**: Meloxicam (0.2 mg/kg BW every 24 h for 4 days) and Cendo Xitrol Eye Drop® (2 drops/eye, twice a day, for 8 days). Elizabeth Collar was used for 3 days.

■ RESULTS AND DISCUSSION

Following surgery, the dog appeared weak, with gland swelling and incomplete eye opening (Figure 1A). The dog's appetite had decreased. By the first postoperative day, appetite slightly improved. On the third day, the swelling began to subside, although the eye remained watery and not fully open (Figure 1B). The dog regained normal activity and appetite, prompting removal of the Elizabethan collar. By the eighth day, the eye was no longer watery and opened normally, with mild glandular swelling persisting. By the thirteenth day, the eyes had fully recovered.

Cherry eyes are typically diagnosed based on their characteristic clinical signs, without additional tests (Utomo *et al*. 2022). The Morgan's pocket technique involves making two parallel elliptical incisions on the posterior third eyelid, dorsally and ventrally to the prolapsed gland. Surgical correction may lead to complications, such as corneal ulceration, inflammation, suture-induced reactions, and recurrence (Peruccio 2018). To minimize the risks, factors such as surgical duration, suture type and size, and technique modifications should be considered. Placing knots on the palpebral surface reduces the risk of corneal trauma, while postoperative antibiotics and corticosteroids help prevent inflammation and infection (Oguntoye *et al*. 2022).

The Morgan's pocket technique is associated with high success and low surgical complexity. This procedure does not alter tear production or nictitating membrane gland duct morphology, as the gland is repositioned and secured. In dogs, the nictitating membrane gland contributes approximately 30–57% of the aqueous portion of the tear film (Multari *et al*. 2016). Repositioning techniques are preferred over excision due to their lower risk of recurrence and dry eye syndrome (Deveci *et al*. 2020).

■ CONCLUSION

In this case, surgical treatment of cherry eye or nictitan membrane gland prolapse using the Morgan's Pocket technique is a simple method that shows effective results by the 13th day post-surgery in kintamani dog.

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