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A hotz celsus approach for developmental bilateral entropion in a Rottweiler dog: Case report

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Abstract

A two year old female rottweiler dog was presented to small animal surgery unit, Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal with the history of epiphora, mild conjunctival hyperaemia, conjunctivitis and blepharospasm of both eyes for past two months. Clinico-ophthalmic examination revealed that neurological eye reflexes and eyeball were apparently normal but ventral inward rolling of lower eyelid in both eyes and corneal opacity noticed in left eye. Fluoroscopic staining of cornea was negative. Based on history, clinical and ophthalmic examination, the condition was diagnosed as bilateral entropion and then decided to manage it surgically by Hotz Celsus technique. Animal had a successful recovery without any complications.

Keywords: Bilateral entropion, hotz-celsus method, Rottweiler

Introduction

Entropion is inward rolling of eyelid margin; it may be conformational, developmental, spastic or cicatricial (Theresa welch Fossum, 1997) ^[3]. If the condition persists for an extended period of time, the degree of entropion will increase and may cause severe ocular inflammations. Etiopathogenesis is frequently multifactorial, although contributing causes can be classified as either "primary" or "secondary." (Carrozza *et al.*, 2022) ^[2]. Developmental entropion arises from primary factors such as conformation of tarsus, orbit and globe and their inter-relationships. Spastic entropion is caused by severe blepharospasm that develops as a result of painful eye conditions such as conjunctivitis, distichiasis, and ulcerative keratitis. Cicatricial entropion arises from acquired lid deformities secondary to previous surgery, injury, trauma or chronic inflammation. Dogs commonly showed developmental entropion include Spaniel, Retriever, Hound, Mastiff and Giant breeds, in addition to specific breeds such as the Rottweiler, Bulldog, Chow Chow and Shar Pei (Slatter, 2001 and Anoop *et al.*, 2021) ^[6, 1]. In most of these breeds, the lateral lower lid is implicated. Sometimes there is additional lateral canthus entropion, especially in Mastiff breeds and the Rottweiler, and sometimes there is additional lower lid ectropion, especially in Giant and Hound types. The Hotz-Celsus procedure involves removing a crescentic portion of eyelid skin and the orbicularis muscle beneath it to restore the lid margin to its normal position (Read and Broun, 2007) ^[4]. The Hotz-Celsus approach is a commonly used surgery for the correction of entropion, and the incision next to the edge of the eyelid is regarded as a crucial step in the surgical process (Stades, 1987) ^[5]. The current case report describes how a Rottweiler dog's bilateral entropion was successfully treated using the Hotz-Celsus approach.

Case History and Observations

A two year old female rottweiler dog was presented to small animal surgery unit, Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal with the history of epiphora, mild to moderate conjunctival hyperaemia, conjunctivitis and blepharospasm of both eyes for past two months. Clinico-ophthalmic examination revealed that neurological eye reflex and eyeball were apparently normal but ventral inward rolling of lower eyelid of both eyes (Fig1 & Fig 2) and corneal opacity noticed in left eye. Both eyes showed elevated Schirmer tear test (STT) values. Fluoroscopic staining of cornea was negative in both eyes. All the physiological, haematological and biochemical parameters were found within the normal range.

The condition was diagnosed as bilateral entropion and then decided to manage it surgically by Hotz Celsus technique.

Treatment

The dog was premedicated with inj. atropine sulphate at the dose rate of 0.02 mg/kg body weight subcutaneously and inj. xylazine at the dose rate of 1 mg/kg body weight intramuscularly and induced with inj. Diazepam and inj. Ketamine at the dose rate of 0.5 mg/kg and 5mg/kg body weight respectively and then anaesthesia was maintained by isoflurane at 2% in oxygen. Animal was administered with preoperative antibiotics (Inj. Amoxicillin @ 10 mg/kg) and painkiller. (Inj. Tramadol @2mg/kg). Aseptically prepared the periocular surgical site. After assessing the appropriate degree of entropion a skin incision, was made around 2 mm distal and parallel to the lower eyelid. The second parallel skin incision was made after proper assessment of the excess skin fold to be removed. A crescent shaped skin flap was elevated from the tarsus with thumb forceps and along with a portion of orbicularis oculi muscle was removed (Fig 3). The skin edges were apposed by cotton thread in simple interrupted suture pattern (Fig 4). Post operatively animal was treated with topical application of Neosporin ointment at the suture site for ten days, Gatifloxacin and Hydroxy methyl cellulose ophthalmic drops for 5 times a day for five days, oral amoxicillin at the rate of 10 mg/kg body weight BID for five days, oral tramadol at the rate of 2mg/kg body weight BID for three days and advise E- Collar to prevent scratching of suture site. The sutures were removed at the tenth postoperative day and the eyelids were normal (Fig 5). Animal had a successful recovery without any complications.



Fig 3: Crescent shaped portion of skin flap was removed



Fig 4: Skin closure



Fig 1: Inward rolling of lower eyelid – Right eye



Fig 2: Inward rolling of lower eyelid with corneal opacity – left eye

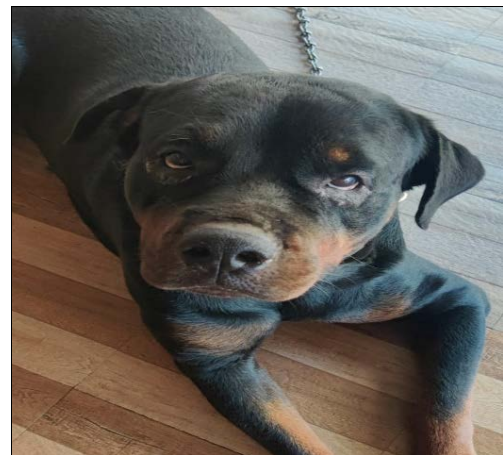


Fig 5: 10th day after surgery

Discussion

Entropion is a conformational defect of the eyelid in which the margin turns inward, resulting in trichiasis, when the eyelid hair comes into touch with the cornea or conjunctiva. If untreated, entropion can cause discomfort, corneal irritability, keratitis, corneal ulceration, and even loss of eyesight (Carrozza *et al.*, 2022) [2]. The primary objectives of eyelid reconstructive surgery are the correction of an aberrant eyelid margin position and restore the comfort. The natural posture of the eyelids aids in tear film quality and turnover and serves as a mechanical barrier to protect the ocular surface. The most efficient and minimally invasive surgical procedure is preferable. A lateral wedge resection with Hotz Celsus was

found suitable for severe case of entropion as reported by (Read *et al.*, 2007)^[4].

Conclusion

Entropion is a common ocular disorder in dogs, and developmental (primary) entropion makes up the majority of cases. A novel surgical technique for the correction of lateral lower lid entropion in dogs is Hotz–Celsus approach and lateral resection were found ideal.

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