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A modified technique of the combined hotz-celsus and eyelid tacking procedure for the correction of unilateral entropion in a rottweiler: A successful case report

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Abstract

A 3 year old male Rottweiler was presented to Multispeciality Veterinary Hospital, Kudappanakunnu, Trivandrum with the history of periorbital edema, severe blepharospasm, conjunctival hyperaemia, pruritus and epiphora from right eye since one week. The animal was earlier treated for corneal ulcer of right eye. The condition was diagnosed as unilateral entropion. Due to the severity of the condition surgical management was advised. A modified technique of the combined Hotz-Celsus and eyelid tacking procedure was successfully performed and the animal had an uneventful recovery.

Keywords: Canine, entropion, hotz-celsus method, eyelid tacking procedure

Introduction

The inversion of the eyelid edge is a hallmark of the multifactorial disorder known as entropion, which can affect dogs. It may be unilateral or bilateral and can impact the upper, lower, or both eyelids. The palpebral border inversion causes irritation of the cornea and conjunctival mucosa due to eyelashes or eyelid hair. (Stades and Gelatt, 2008; Daneze *et al.*, 2017; McDonald and Knollinger, 2019; Asti *et al.*, 2019)^[9, 3, 6, 2]. It is most commonly seen in dogs under one year of age (Asti *et al.*, 2019)^[2]. Entropion can be grouped into two categories: primary and secondary, with the latter being further divided into spastic and scarring (White *et al.*, 2011)^[11]. Anatomical anomalies of the tarsus, orbit, eyeball, and their interactions result in primary entropion. Secondary entropion can result from acquired ocular alterations, including trauma, periorbital fat loss, and changes in eyeball size. (Viana *et al.*, 2006; White *et al.*, 2011)^[10, 11]. Breeds like English Springer Spaniel, Labrador Retriever, American Bulldog, Rottweiler, Chow Chow, Shar-Pei, and giant breeds such as Saint Bernard and Mastiff are more prone to primary entropion. The clinical manifestations includes blepharospasm, ocular or periocular pruritus, corneal ulceration, corneal neovascularization, conjunctivitis, keratitis, epiphora, photophobia, and purulent discharge. The incision close to the edge of the eyelid is the crucial component of the surgical technique for the Hotz-Celsus method, which is a commonly utilized procedure for the repair of entropion. The Hotz-Celsus method involves excision of a crescentic area of eyelid skin and underlying orbicularis muscle adjacent to the area of lid margin to bring it back to a normal position (Read and Broun, 2007)^[7]. To evert the eyelid margins in puppies, palpebral tacking is performed, which involves placing temporary stitches in the afflicted eyelid or both eyelids. (Johnson *et al.*, 1988)^[5].

Materials and Methods

Case History and Observations

A three year old male rottweiler weighing 40 kg was presented to Multispeciality Veterinary Hospital, Kudappanakunnu, Trivandrum with severe blepharospasm, periorbital edema, conjunctival hyperaemia, pruritus and epiphora of the right eye (Fig.1). The animal was earlier treated for corneal ulcer of right eye. On clinical and laboratory examination, all the physiological, haematological and biochemical parameters were found to be normal. Ocular examination revealed severe unilateral entropion and associated trichiasis and scleritis. Epiphora was observed unilaterally (i.e on right eye). The episcleral vessels were injected and the cornea showed mild cloudiness. The condition was diagnosed as unilateral entropion and it was decided to correct the condition surgically.

Treatment

On the basis of clinical examination and diagnostic findings, the condition was tentatively diagnosed to be unilateral entropion. The dog was pre-medicated with inj. Atropine sulphate @ 0.045 mg/kg bwt subcutaneously, inj. Dexamethasone @ 0.5 mg/kg bwt intramuscularly. The anaesthesia was induced with inj. Xylazine @ 1 mg/kg bwt and inj. ketamine @ 5 mg/kg bwt intravenously. Maintenance of anaesthesia was done using Ketamine: Diazepam mixture at the ratio of 1:1 (v/v) given intravenously as intermittent boluses to effect. The surgical site was prepared aseptically, and pre-operative fluid therapy with normal saline was initiated. The dog was positioned in left lateral recumbency. After the appropriate assessment about the degree of entropion, a skin incision was made around 2 mm distal and parallel to the lower eyelid (Fig 2). The second parallel skin was made after proper assessment of the excess skin fold to be removed. A crescent shaped portion of skin flap along with a portion of orbicularis oculi muscle was removed (Fig 3). Placed a horizontal mattress suture into the lateral canthal fascia and orbicularis muscle deep to the skin incision and fascia overlying the orbital ligament using PDS (4-0). In addition to this, eyelid tacking was performed using PDS (3-0). This was done by inserting the needle into the skin and through tarsal plate and orbicularis muscle 3 mm from eyelid margin. This needle was then taken out 5 mm from its insertion to complete its first bite. Positioned the second bite over the rim of the orbit. The needle was then passed through the skin, subcutaneous tissue, and orbital fascia and taken out creating a second 5 mm bite. The suture was then tied, inverting a furrow of skin (Fig 5). The skin edges were apposed by monofilament nylon (3-0) in cross mattress suture pattern (Fig 4).

Post-operatively the animal was treated with Inj. Intacef Tazo @ 20 mg/kg bwt for 7 days, Inj. chloril @ 0.5 mg/kg bwt for 7 days, Inj. Meloxicam @ 0.2 mg/kg bwt for 3 days, topical application of megaheel ointment at the suture site for 18 days, Ophthocare M eyedrops and CMC eye drops for 18 days, tablet penetrat pet for 6 days, and tablet Pantocid @ 1 mg/kg bwt for 7 days. Owner reported suture dehiscence after nine days of surgery and re-suturing was performed. After eighteen days of surgery, the sutures were removed and animal did not exhibit any signs of ocular irritation (Fig: 6). All the associated symptoms were also got completely subsided.

Results and Discussion

Unilateral entropion and its surgical - correction through a modified technique of the combined Hotz-Celsus and eyelid tacking procedure in a Rottweiler dog is reported. The normal functions of the eyelids include the entrapment of debris, distribution of the tear film and protection of the eyelids. Absence of a fully functional eyelids can leads to secondary complication and damage the eye. Entropion or lid-in turning is the inward rolling of eyelid margin and it can be three types: congenital or developmental, spastic and cicatricial. The confirmation of the tarsus, orbit, and globe, as well as their interactions, are the fundamental causes of developmental entropion. Spastic entropion is caused by severe blepharospasm that develops as a result of painful eye conditions such conjunctivitis, distichiasis, and ulcerative keratitis. The development of cicatricial entropion results from acquired lid abnormalities brought on by prior surgery, trauma, injury, or persistent inflammation. (Read and Broun,

2007) [7]. Breed predisposition include chow chow, St. Bernard, English bulldog, Great Dane, bull mastiff and sporting dogs. The disease occurs sporadically or may be inherited as an autosomal dominant trait.



Fig 1: Animal presented with periorbital edema, pruritus, blepharospasm and epiphora.

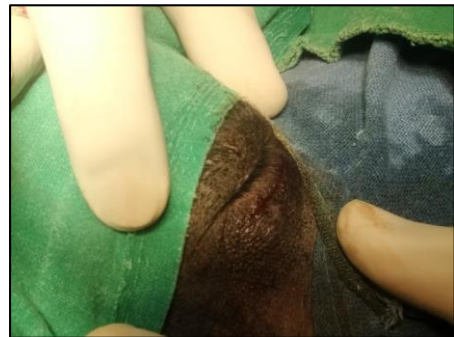


Fig 2: After the appropriate assessment about the degree of entropion a skin incision, was made around 2 mm distal and parallel to the lower eyelid

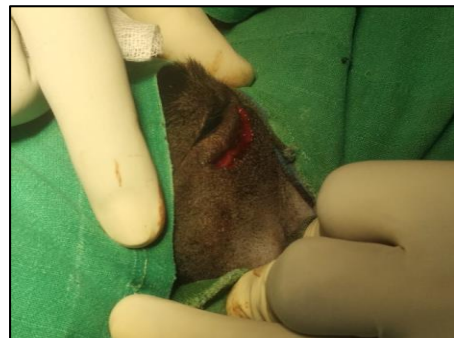


Fig 3: A crescent shaped portion of skin flap along with a portion of orbicularis oculi muscle was removed.



Fig 4: Cross mattress suturing performed.



Fig 5: Eyelid tacking procedure.



Fig 6: Recovery 18th post-operative day.

Conclusion

Unilateral Entropion and its surgical correction through modified technique of the combined Hotz-Celsus and eyelid tacking procedure in a rottweiler was reported.

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