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Clinical Report

Coronal Rhytidectomy for Correction of Bilateral Superior Entropion in Dogs with Redundant Eyebrow Droop: A Review of Two Cases

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ABSTRACT

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Various degrees of entropion defects with redundant skin folds due to conformational defects are common in Chow Chow and Shar-Pei breeds of dogs. The irritation caused by the eyelid and hairs on the conjunctiva results in lacrimation and blepharospasm. In severe cases, as the dogs reach 7-8 months of age the complications of this extreme entropion result in a corneal ulcer. Temporary tacking of the facial folds was resorted to augment the corneal healing and to assess the size of the skin to be removed later. Surgical excision of wrinkles-rhytidectomy was done as radical surgery and was found satisfactory. The area of natural tension lines along the wrinkles in the coronal region was marked before excision and for a good cosmetic outcome. This paper describes the need for a rhytidectomy -excision of large facial skin folds- in Chow Chow and Shar-Pei breeds of dogs to correct bilateral superior total entropion

Introduction

Entropion is the inward deviation of the eyelid and its severity is assessed by the degree of the tilt noticed at the eyelid margin. The defect usually occurs as a congenital condition and is predisposed by conditions such as confirmation of the skull, narrow palpebral fissure, excess skin folds and orbital anatomy. These variations result in differences in the tension of orbicularis oculi and malaris muscles causing upper and lower entropion respectively. Depending on the degree of lid margin tilt it can be classified as mild

(45°), moderate (90°), and severe (180°). When this condition is aggravated by upper eye lid trichiasis, subsequent irritation on the conjunctiva and cornea leads to corneal pathologies.¹

Initially there is lacrimation, followed by corneal epithelial loss, ulceration and perforation. In chronic cases scarring and pigmentation are seen. The breeds which are more commonly affected are Chow Chow, Shar-Pei, Rottweiler, Bloodhound, Bouvier des Flandres and to some extent old English Cocker Spaniel as they tend to lose elasticity in their facial skin.² It has been explained that the main reason for ocular irritation in

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Bloodhound and English Cocker Spaniel is the pressure on the eyelids due to heavy weight of large drooping ears when the animal turns head toward the ground. Redundant skin folds around the eye complicate these problems to a higher degree resulting in droop of the palpebral fissure masking the globe, thus affecting the sight. Early signs are often seen at 2-6 weeks of age in these breeds.³ While majority of canine entropion can be corrected by Hotz-Celsus procedure, severe deviations can be corrected by brow-sling and rhytidectomy. The technique of rhytidectomy and the outcome of surgery in two dogs are described in this case report.

Case Description

An 8-month-old Chow Chow and a 7-month-old Shar-Pei both males were presented with a complaint of copious ocular discharge coupled with difficulty while tracing objects. The Chow Chow had a previous history of bilateral surgical correction of prolapsed nictitans gland.

Initial examination revealed drooping of facial folds covering the visual axis. Ophthalmic examination showed ocular discharge and conjunctival hyperemia bilaterally. (OU, oculus uterque). The restless behaviour made further ophthalmic examination of the ocular surface difficult in both the cases. A flash preoperative assessment on hematology was made and a detailed ophthalmic exam was carried out in both dogs under general anesthesia.

The loose forehead folds hanging forward were pulled and rolled back to study the eyelid and corneal pathology. Topical instillation of proparacaine hydrochloride 0.5% (Hitop eye drops by Hicare Pharma, Chennai, India) was done after taking samples for sensitivity tests. Ophthalmic examination and fluorescein dye test revealed corneal ulcer in right eye (OD oculus dexter) in Chow Chow and in left eye (OS oculus sinister) in Shar-Pei.

Treatment and Outcome

In both cases, temporary eyelid tacking procedure was performed by frontal suspension using 3-0 prolene to correct ptosis and to allow the corneal ulcer to heal over one week. (Figure 1). Subsequently tacking suture positions were marked in a paper to aid in the proper (Figure 2) dressing of the sites with topical antibiotic ointment Tobramycin (Zobra.0.3%, Hicare Pharma Chennai, India) and post-operative suture removal as

these sutures tend to get buried in the loose skin fold. A widened palpebral fissure was appreciated following surgery (Figure 3)

The corneal ulcers were treated with topical antibiotic eye drops with moxifloxacin (Onemox 0.5%, Hicare Pharma Chennai, India) drop three times a day, lubrication with Hydroxy propyl methyl cellulose gel, (Hicool PF Eye gel 2%, Hicare Pharma Chennai, India) twice daily and oral cephalexin. (Lixen tablets Virbac Animal Health India Pvt Ltd, Mumbai, India) Later the topical antibiotic was changed to topical Amikacin fortified drops (Amitas 500, amikacin sulphate, Intas Pharmaceuticals, Gujarat, India) as per the sensitivity result. After seven days fluorescein dye test confirmed complete epithelialization of corneal ulcer and both the dogs regained a reasonable vision.

The permanent surgical correction-rhytidectomy for the drooped skin fold was resorted to as the tacking sutures provide a temporary relief only. A detailed pre-operative assessment including neuro ophthalmic tests were performed.⁴

The size of the coronal fold for resection was assessed by lifting the skin in the occipital region both in conscious state as well as under general anesthesia. The direction of the natural tension lines was identified. Under general anaesthesia the dogs were positioned in sternal recumbency and the surgical area was aseptically prepared with 1:50 povidone iodine solution. (Figure 4) The line of incision on the coronal area was drawn with the help of a surgical sterile marker pen after assessing the extent of skin to be removed. (Figure 5). Incision was made with a # 10 scalpel blade (Figure 6) and bleeding was controlled with monopolar electrocautery. The length of skin measured between ears were 18 cm for Chow Chow and 15 cm for Shar-Pei and between the occipital crest to brow were 15 cm and 12 cm respectively. The skin edges were brought closer and were retained with the help of walking sutures using 2-0 PDS (Figure 7). The subcutaneous sutures were placed continuously using 3-0 PDS and the skin was closed with 3-0 prolene (Polypropylene suture, Ethicon, Mumbai, India) in simple interrupted manner.

A bandage was applied on the head region (Figure 8) with the ears incorporated to prevent tension on the suture line and an Elizabethan collar was recommended to prevent self-trauma and wound dehiscence. Post operatively topical tobramycin (Eye ointment Zobra 3%, Hicare Pharma Chennai, India) was used on suture lines.

Following surgery there was uplift of the brows and resolution of entropion. Treatment involved continuation of oral antibiotic Cephalexin for 7 more days and use of topical tobramycin ointment for 2 weeks. Post-surgical recheck was done a week later which showed an improved visual status, (Figure 9) well appreciated in unfamiliar surroundings. Ophthalmic exam revealed sufficient eversion of the eyelids with a complete blink reflex bilaterally. (Figures. 10 and 11) No tension was seen at the suture line on cervical flexion. Neuro ophthalmic tests and facial nerve assessment revealed normal reflexes. The surgical wound healed uneventfully.

Clinical Relevance

In mild and moderate cases of entropion when presented in Retriever breeds of dog's topical instillation of proparacaine hydrochloride usually abolishes the blepharospasm/spastic entropion temporarily for a complete corneal and anterior chamber examination. However, in the present case, the excess skin folds prevented thorough examination despite the use of proparacaine and hence general anesthesia was needed to study the pathology. It is

recommended following the antibiotic sensitivity test. The use of fortified amikacin antibiotic eye drops was found effective in the treatment of ulcer. A pre surgical scrub up with 2% dilution of povidone iodine was done prior to surgery.

Willis *et al.*⁵ performed brow suspension surgery for treatment of ptosis and entropion in seven dogs with redundant skin using polyester mesh strips and stated that the need for an elaborate facial fold excision could be avoided. The brow sling procedures reverse the distorted eyelid margins and the degree of correction always reflects the skill of the surgeon. Skin tacking procedures help in the initial treatment and often done as an emergency procedure without any proper assessment of the specific condition. This procedure aims at early reversal of the corneal pathology.

Frontalis suspension proved successful for the initial relief measures. The four to five numbers of walking sutures placed between the occipital periosteum and the fascia helped in adhesion by fibrosis to prevent ptosis. The visual improvement was immediate as the visual axis was restored. Some of the complications mentioned are suture abscess and scarring during skin tacking procedures.⁶ Two



Figure 1. Placement of skin tacking sutures.

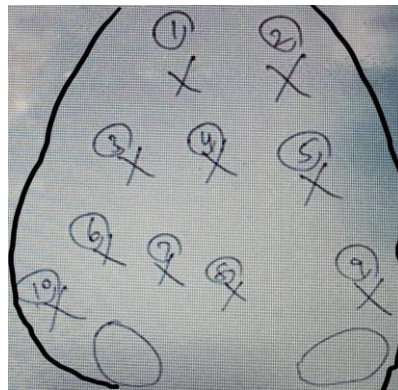


Figure 2. Suture positions marked on a paper.



Figure 3. Palpebral fissure widened.



Figure 4. Preoperative preparation of site.



Figure 5. Surgical excision marking.



Figure 6. Incision along natural stress lines.



Figure 7. Placement of walking sutures.



Figure 8. Placement of head bandage.



Figure 9. Tenth post-op day.



Figure 10. Widened palpebral fissure OD (post-op 15th day).



Figure 11. Widened palpebral fissure OS (post-op 15th day).

mersilene strip slings anchored to temporal bone periosteum were used to lift the redundant folds.⁵ The advantage was that it was a simple technique, but the disadvantage was over correction leading to lagophthalmos.

Surgical options for the correction of entropion such as Hotz-Celsus procedure and Stades procedure often fails to address the brow droop in Chow Chow breed due to weight of the fold. Techniques to correct entropion in such breeds are face lift procedure of rhytidectomy in which loose skin is removed from the dorsal cervical region or the radical excision of the excess skin.⁷ In case of upper eyelid trichiasis, following radical excision purposeful second intention healing by granulation is more preferred.³ The post-operative outcome with such a procedure involves risk of altered cosmesis.

Rhytidectomy is a Greek word meaning excision of wrinkles where rhytis means wrinkle and ektome means excision. Since the incision pattern was based on natural tension lines, no post-operative suture tension was observed in these cases resulting in a good cosmetic outcome. In Chow Chow breed these lines travel in a sagittal plane hence coronal rhytidectomy

technique was found successful. In case of Chinese Shar-Pei these lines run in a star like pattern where stellate rhytidectomy technique is recommended.⁸ Some of the complications of rhytidectomy reported are hematoma, infection and facial nerve impairment.⁹

The excision of skin in the dorsolateral and frontal area could result in a poor outcome in long term follow-up due to lack of attention paid to lash type hairs causing direct trichiasis irritation. Hence a thorough study of the pathology in these breeds helps the surgeon to decide on the appropriate technique to be employed.¹⁰ Although the surgical options are not technically difficult, the results must be cosmetically acceptable and allow normal palpebral function.

Conflict of Interest

The authors declare no conflicts of interest related to this report.

References

1. Gelatt KN. Essentials of veterinary ophthalmology. John Wiley & Sons. 2014; 163-185.
2. Petersen-Jones SM, Crispin SM. BSAVA Manual of small animal ophthalmology. British Small Animal Veterinary

- Association. 2002; 133-166
3. Stades FC, Gelatt KN. Diseases and surgery of the canine eyelid. In: *Essentials of Veterinary Ophthalmology*. 2008; 22: 53.
 4. Gelatt KN, Gilger BC, Kern TJ. *Veterinary ophthalmology*. John Wiley & Sons. 2012; 1820-1896
 5. Willis AM, Martin CL, Stiles J, Kirschner SE. Brow suspension for treatment of ptosis and entropion in dogs with redundant facial skin folds. *Journal of the American Veterinary Medical Association*. 1999; 214(5): 660-662.
 6. McCallum P, Welser J. Coronal rhytidectomy in conjunction with deep plane walking sutures, modified Hotz-Celsus and lateral canthoplasty procedure in a dog with excessive brow droop. *Veterinary Ophthalmology*. 2004; 7(5): 376-379.
 7. Blogg JR. Diseases of the eyelids. In: *The eye in veterinary practice*. W.B. Saunders. Philadelphia. 1980; 314.
 8. Stuhr CM, Stanz K, Murphy CJ, McAnulty J. Stellate rhytidectomy: superior entropion repair in a dog with excessive facial skin. *Journal of the American Animal Hospital Association*. 1997; 33(4): 342-345.
 9. Elkwood A, Matarasso A, Rankin M, Elkowitz M, Godek CP. National plastic surgery survey: brow lifting techniques and complications. *Plastic and Reconstructive Surgery*. 2001; 108(7): 2143-2150.
 10. Kirschner.S. Modified brow sling technique for the upper lid entropion. *Proceedings of the Scientific meeting of the American college of veterinary Ophthalmologists*. 1995; 25: 68-69.