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Surgical management of traumatic proptosis in pet animals

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Abstract
The present study was recorded traumatic proptosis in dogs (n=6) and cats (n=4) which were presented to the Emergency and Critical Care Unit of Madras Veterinary College. Dogs and cats displaced eye balls over a period of three months by various reasons like dog bite, blunt trauma to the head by road traffic accidents and other modes of trauma. On closed ophthalmic examination the condition was diagnosed as traumatic proptosis and decision was taken whether temporary tarsorrhaphy or extirpation has to be performed based on extend of damage to globe and extra ocular tissue. Extirpation of eye ball was performed in seven animals, whereas temporary tarsorraphy was performed in three animals which had vision following globe replacement. In conclusion, pet which had proptosis regaining of vision was higher if the injuries to globe and surrounding structure minimal and replacement was performed immediately.

Keywords: Proptosis - trauma and Bite wound - temporary tarsorraphy - extirpation of the globe

Introduction
Proptosis is an acute anterior displacement of globe beyond the margin of orbital rim due to blunt trauma to the head by an accident or bite wound (Lesley and Boag, 2018 and Kumar *et al*., 2022) [1, 2] which require immediate medical and surgical treatment [3]. The condition was more common in brachycephalic breeds of dogs than the dolicephalic breeds of the dog because their skull confirmation and large palpebral fissure (Fossum, 2013 and Rohit Kumar *et al*., 2021) [4, 5] and catastrophic in cats [6]. Clinical signs and treatment based on the degree of damage to globe and extra ocular tissue.
Temporary tarsorrhaphy has to attempted if the damage to extra ocular tissue and globe are minimal and enucleation is indicated if the globe and extra ocular tissue is severely damaged (Lesley and Boag, 2018) [1] even after the replacement of the globe following complications may be encountered *viz*. Infection, strabismus, exposure keratitis and blindness[7]. The prognosis following globe replacement is poor due to stretching and entrapment of optic nerve (Sheila crispin, 2005 and Kumar *et al*., 2022) [8, 2] however testing of direct and indirect pupillary light reflex is simple and effective method to evaluate the vision [9].

Materials and Methods
The present study was recorded traumatic proptosis in dogs (n=6) and cats (n=4) which were presented to the Emergency and Critical Care Unit of Madras Veterinary College. Dogs and cats displaced eye balls over a period of three months by various reasons like dog bite, blunt trauma to the head by road traffic accidents and other modes of trauma. All the animals were restrained properly before perform of ophthalmic examination.
On ophthalmic examination, eye ball was protruded beyond the orbital margin without damage to extra ocular muscle in three dog (Figure.1) with severely damaged extra ocular muscle in three dogs (Figure 3 and 4) and four cat (Figure 2) with miotic un-responsive pupil. Based on the history and observation obviously the condition was diagnosed as traumatic proptosis. Surgical extirpation of the eye ball was decided as line of treatment in three dogs and four cats that had severe extra ocular muscle damage, remaining three dogs replacement of globe was decided, since the extra ocular muscles were not severely damaged.

Surgical procedure

All the traumatic proptosis affected dogs were sedated with xylazine and butorphanol combination (Xylazine HCl @ 1mg/kg I/M and Butorphanol @ 0.2mg/Kg I/M) and inductionwas done with ketamine and diazepam combination (Ketamine @ 5 mg/kg I/V and Diazepam @ 0.5 mg/kg I/V) whereas in cats by Xylazine, Butorphanol and Ketamine combination (Xylazine @ 0.1 ml/kg of 2% concentration, Butorphanol @ 0.1 mg and Ketamine @ 15 mg/kg). After the anaesthetic induction, the affected eye ball was surgically prepared with diluted povidone iodine. After surgical preparation, upper and lower eyelid was temporarily closed with polyamide 2.0 (temporary tarsorrhaphy) followed by a circular incision was made around the orbital rim, subcutaneous was undermined then the attached extra ocular muscles were blindly dissected with curved mayo scissor.

Optic nerve was severed after infiltration of 0.5 ml of lignocaine around the optic nerve sheath and eye ball was removed. After removal the subcutaneous tissue was closed with PGA 2.0 and skin by polyamide 2.0 (Figure 1b and 4a) in seven animals. Whereas in three animal lateral canthotomy done (Figure 1a) and globe was replaced and temporary tarsorrhaphy performed by using polyamide 2.0 suture in horizontal pattern. Postoperatively the pets were prescribed with amoxicillin and cloxacillin and meloxicam for a week. Animal was recovered uneventfully within a week after surgery and skin suture was removed on 14th postoperative day.

Results and Discussion

Proptosis is an acute forward displacement of globe beyond the orbital rim due to blind trauma to the head or by bite wound. In this study out of ten animals presented with proptosis in six animals the condition was due to dog bite and in four animal due to blunt trauma to head by road traffic accident. This result was in accordance with the report of Lesley and Boag (2018) [1] who also observed severe proptosis condition in pet dogs due to dog bite and blunt trauma. Gelatt (2011) and Lesley and Boag (2018) [6, 1] reported that brachycephalic type of dogs are more prone for proptosis than dolicephalic type of dogs due their skull confirmation, but in the present study contrary to the earlier findings. In the present study dolicephalic type of dogs were affected. This could be due to less exposure to the outside and indoor rearing of brachycephalic breeds of dogs in country like India. But in accordance with statement of Fossum (2013) [4] the author stated that any animal may suffer with trauma.

In the present study out of ten animals presented with proptosis seven animals eye balls was extirpated and remaining three animal eye ball was replaced and temporary tarsorrhaphy was done. In this study whether extirpation or temporary tarsorrhaphy has to be performed is decided based on earlier reports [6, 7]. They opined that temporary tarsorrhaphy has to be performed if the damage extra ocular muscle is less than two and extirpation is considered if more than two extra ocular muscle damaged and perforation and hyphema of the anterior chamber present.

In this study three animal that underwent temporary tarsorrhaphy had vision following replacement. This result was not in accordance with the results of Lesley and Boag (2018) [1] Who stated that prognosis for vision following replacement of globe in brachycephalic breeds is higher than the dolichocephalic breeds because the pressure required to displace the globe, hence the likely could damage to the extra ocular tissue and globe will be minimal in brachycephalic type of dogs. In the present study the animal underwent globe replacement is dolichocephalic type even though the animal regained vision. This could be because of no extra ocular muscle were damage and replacement was done immediately following displacement. All the animals underwent surgical procedure in the present study recovered uneventfully and suture removed on 14th postoperative day.

Fig 1: (protrusion of eye ball without damaging the extra ocular muscle)

Fig 1a: (Lateral Canthotomy)

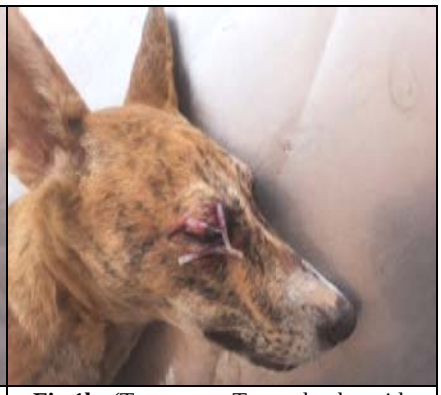

Fig 1b: (Temporary Tarsorrhaphy with stent)

Fig 2: (Protrusion eye ball with severely damaged extra ocular muscle)

Fig 3: (Protrusion eye ball with dried cornea)

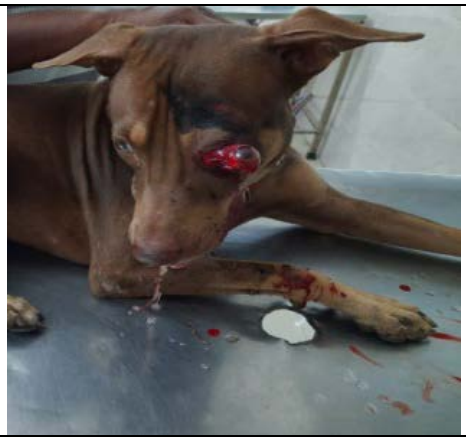

Fig 4: (severely damaged extra ocular muscle with protruded eye ball)

Fig 4a: (Temporary Tarsorrhaphy without stent)

Conclusion

Based on the results of the present study, concluded that occurrence of proptosis is high due to animal bite in country like India. This can be prevented by keeping the animals in separate and indoor. Following occurrence regaining of vision is high if the injuries to globe and surrounding structure is minimal and replacement was performed immediately.

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Reference

1. Lesley GK and Boag A. BSAVA Manual of Canine and Feline Emergency and Critical Care. Third edition; c2018. p. 157.
2. Kumar A, Gopinathan A, Singh K, Kamdak Y, Bharti D, Arya M, *et al*. Surgical management of traumatic proptosis in dog: A report of five cases. Haryana Veterinarian. 2022;61(2):279-280.
3. Joy N, Jhala SK, Patel A, Parikh PV, Patil DB. Management of traumatic ocular proptosis in a Pug. Intas Polivet. 2009;10(2):375-376.
4. Fossum TW. Small Animal Surgery Textbook. Fourth edition, Elsevier Health Sciences; c2013. p. 318.
5. Rohit Kumar SK, Jhirwal, Sharma MP, Vilas D, Bishnoi P. Management of traumatic unilateral proptosis with globe replacement surgery in a pug: a case report. Journal of Entomology and Zoology Studies. 2021;9(1):1485-1486.
6. Gelatt KK. Veterinary Ophthalmic surgery, Fifth edition, Wiley Blackwell publication; c2011. p. 814.
7. Ali KM, Mostafa AA. Clinical findings of traumatic proptosis in small-breed dogs and complications associated with globe replacement surgery. Open Veterinary Journal. 2019;9(3):222-229.
8. Crispin S. Notes on veterinary ophthalmology. A Blackwell Publishing; c2005. p. 25.
9. Pe'er O, Oron L, Ofri R. Prognostic indicators and outcome in dogs undergoing temporary tarsorrhaphy following traumatic proptosis. Veterinary Ophthalmology. 2020;23:245-251.