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Short Communication

SURGICAL MANAGEMENT OF TRAUMATIC PROPTOSIS IN DOGS: A REPORT OF FIVE CASES

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SUMMARY

Proptosis is an ophthalmic emergency condition characterized by partial or complete rostral displacement of the globe with respect to the corresponding orbit. This report is based on the study which was carried out on five dogs with unilateral proptosis. All the five dogs were male and road accident was the cause of proptosis. Breed wise one was Pug breed dog, three spitz and one mongrel dog. Emergency management of traumatic proptosis was done surgically in five dogs. Cases were clinically managed by adopting manual globe reduction approach with lateral canthotomy and tarsorrhaphy. Surgical interventions were successful in two of five cases presented early with minimum displaced globe.

Keywords: Canthotomy, Dogs, Proptosis, Tarsorrhaphy

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Proptosis is an ophthalmic emergency condition characterized by partial or complete rostral displacement of the globe with respect to the corresponding orbit. The disease develops as a result of minimal lateral head trauma mostly (Ali and Mostafa, 2019). This condition usually affects small breeds of dogs and more often in brachycephalic breeds of dogs due to typical skull anatomy (Wheler *et al.*, 2001). The traumatic protrusion of eyeball in dogs is usually due to blunt trauma either by automobile accidents or infighting (Parmar *et al.*, 2016). Clinical signs involve contracture and entrapment of the corresponding eyelids behind the globe (Crispin, 2005). Various treatment protocols have been exercised for the treatment of proptosis and is based on the severity and structure involved, if three or more muscles are involved enucleation is performed and in less severe cases globe replacement along with tarsorrhaphy is executed Miller (2018). In the present study surgical management of traumatic proptosis in five dogs was carried out.

This case report describes the proptosis management in five dogs which were presented with different extent of severity of proptosis (Fig. 1) at Teaching Veterinary Clinical Complex cum Referal Veterinary Polyclinic, IVRI, Bareilly, India. In all the five cases the reason for proptosis was automobile accident. Among five cases two were having minimally displaced globe and another three cases were having severely damaged globe with entrapment of eyelids behind the globe. Dogs of Pug (1), spitz (3) and mongrel (1) breeds were involved. Vital parameters for all patients were assessed and mentioned in Table 1.

Pupillary light reflex (PLR) and consensual reflex found sluggish in the two cases while it was absent in the other three cases (those presented after 24 hours of trauma) also the consensual response was found in the two cases which were presented within 24 hour of injury, while it was found absent in the three other cases. Direct ophthalmoscopy revealed normal fundus in two cases and in another three cases the fundus was not clearly visible.

The traumatized globes were thoroughly cleaned with gauze pads soaked in normal saline. Dogs were stabilized with the administration of 0.9% normal saline and 5% DNS. Atropine (dose and route used: 0.04 mg/kg subcutaneously), butorphanol 0.2 mg /kg and diazepam (0.5 mg/kg intravenously, Calmose 5mg/ml, Sun pharma) were administered for achieving pre-anesthetic requirement and induction of anaesthesia was done with ketamine @ 7 mg/kg intramucluraly, manufacturers detail: Ketmin® 50 mg/ml, Themis Medicare Ltd.). Maintenance of anesthesia achieved with ketamine and diazepam (1:1) combination at the rate of 1ml/20 Kg intravenously. Site for surgery were prepared by clipping hairs around the orbits and clipped sites were scrubbed with chlorhexidine (0.02%) solution, final cleaning achieved with diluted povidone iodine solution. Surgical site then draped with autoclaved drapes.

Three of five dogs were managed by replacement of globe with tarsoraphy (Fig. 2), while two dog were managed by replacement of globe with lateral canthotomy followed by tarsoraphy. Postoperatively drop tobramycin thrice a day and flurbiprofen twice a day were prescribed along with systemic antibiotics (ceftrioxone 25mg/kg, intramuscularily for 5 days) in all the patients. Tarsoraphy suture were removed 10 days after surgery (Fig. 3). Surgical interventions in two cases presented early with

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Table 1. Vital parameters recorded at the time of presentation in all the five dogs

Parameters	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Heart rate (bpm)	95	82	87	93	91
Pulse rate (pulse/min)	86	75	79	85	87
Respiration rate	25	28	31	27	22
Mucus membrane	Pink	Pink	Pink	Pink	Pink
Capillary refill time	Less than 1 second	Less than 1 second	Less than 1 second	Less than 1 second	Less than 1 second

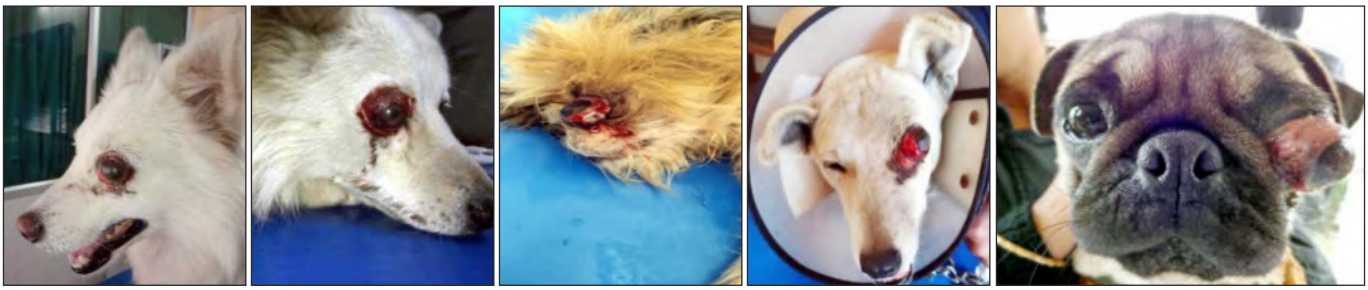

Fig. 1. Dogs presented at clinic with traumatic proptosis

Fig. 2. Showing replaced globe into the orbit and tarsorrhaphy was performed

minimum displaced globe were good and partial vision was restored. Vision in other three cases presented late with severely displaced globe was not restored but positioning of globe was regained.

Prognosis for vision following traumatic globe prolapse is generally guarded and depends on the extent of skeletal, extra-ocular and intraocular trauma. Out of five cases presented at clinic only two acquired the vision again (those were having positive PLR) and other patients did not gained vision after surgery. Presence of direct or indirect PLR is a positive prognostic indicator (Peer *et al.*, 2019). Avulsion of extraocular muscles is a common complication of traumatic proptosis. In the majority of cases, the muscles to be affected are the medial rectus, ventral oblique, and the ventral rectus due to their anterior insertion.

Partially displaced globe if managed within short period of time after injury can save the vision however the prognosis for severely damaged globe is poor.

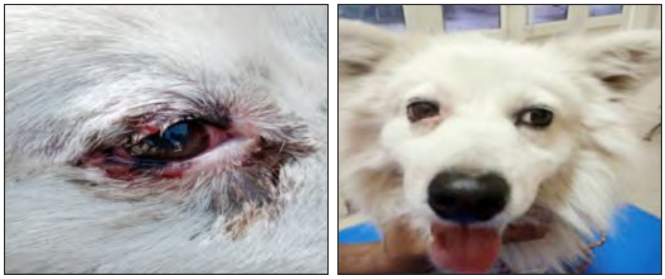

Fig. 3. Appearance of globe after removal of tarsorrhaphy sutures in animals

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