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Rohit Kumar Sharma

M.V.Sc. Scholar, Department of
Veterinary Surgery and
Radiology, CVAS, Bikaner,
Rajasthan University of
Veterinary and Animal Sciences,
Bikaner, Rajasthan, India

SK Jhirwal

Assistant Professor, Department
of Veterinary Surgery and
Radiology, CVAS, Bikaner,
Rajasthan University of
Veterinary and Animal Sciences,
Bikaner, Rajasthan, India

Manu Prabh Sharma

M.V.Sc. Scholar, Department of
Veterinary Surgery and
Radiology, CVAS, Bikaner,
Rajasthan University of
Veterinary and Animal Sciences,
Bikaner, Rajasthan, India

Vilas D

M.V.Sc. Scholar, Department of
Veterinary Surgery and
Radiology, CVAS, Bikaner,
Rajasthan University of
Veterinary and Animal Sciences,
Bikaner, Rajasthan, India

P Bishnoi

Associate Professor & Head,
Department of Veterinary
Surgery and Radiology, CVAS,
Bikaner, Rajasthan University
of Veterinary and Animal
Sciences, Bikaner, Rajasthan,
India

Corresponding Author:**SK Jhirwal**

Assistant Professor, Department
of Veterinary Surgery and
Radiology, CVAS, Bikaner,
Rajasthan University of
Veterinary and Animal Sciences,
Bikaner, Rajasthan, India

Management of traumatic unilateral proptosis with globe replacement surgery in a pug: A case report

Rohit Kumar Sharma, SK Jhirwal, Manu Prabh Sharma, Vilas D and P Bishnoi

Abstract

Present study reports, a successful diagnosis and surgical management of traumatic unilateral proptosis in a two year old male pug without lateral canthotomy under general anaesthesia. Pug was presented to VCC, Bikaner with history of automobile accident approximately 4 hours prior. Temporary tarsorrhaphy was done after replacing the eye ball in its anatomical location and animal recovered completely after a week of surgery without any further complication.

Keywords: proptosis, pug, dog, traumatic, globe replacement surgery

Introduction

The eye is undoubtedly the most uniquely crafted sensory organ of the vertebrate body (Don A., 2013) [1]. Traumatic ocular proptosis is defined as forward displacement of the eye by a traumatic episode with entrapment of the eyelids behind the eye (Fossum, 2013) [2].

The carnivores have an incomplete orbit making them predisposed to prolapse of globe following trauma to head (Joy *et al.*, 2009) [3]. Proptosis of the globe secondary to trauma is common in brachycephalic animals and considered as an ocular emergency and need effective therapy (Stephen, 2013) [10]. Due to shallow orbit, prominent eye and poor eyelid closure, pugs are predisposing for proptosis (Joy *et al.*, 2009) [3].

Case history and clinical examination

A two year old male pug dog weighing 4.5 Kg was presented to VCC, Bikaner with the history of automobile accident, approximate 4 hours prior. Thorough physical and clinical examination of the proptosed and sound eyes was performed. No abnormality was observed in the sound eye. However, clinical examination of proptosed right eyeball revealed slight periorbital swelling and minimal extraocular muscle damage. The cornea was cloudy and discoloured with bruised, hyperemic, and swollen conjunctiva and surrounding periorbital tissues. Direct ophthalmoscopy performed after cleansing the proptosed eyeball revealed no abnormality in anterior and posterior segment of eye. The radiographical examination of the proptosed eye ball does not showed any fracture of skull. The menace response in the proptosed eye was negative. The direct and consensual pupillary reflex was positive. On the basis of clinical examination, replacement of eye ball was decided to reduce further complication.

Anaesthesia and surgical procedure

The replacement of globe in the respective orbit followed by temporary tarsorrhaphy was performed under general anaesthesia. The dog was premedicated with atropine sulphate¹ and xylazine hydrochloride² @ 0.04 mg/kg b.w. i.m. and 1 mg/kg b.w. i.v., respectively. General anaesthesia was induced with ketamine hydrochloride³ @ of 15 mg/kg b.w. i.v and maintained with Isoflurane⁴ till effect. The conjunctiva and periocular tissue of the proptosed eyes were

¹ Atropine sulphate - Atropine Sulphate Injection I.P. (Vet) (Morvel Laboratories Pvt. Ltd., Mehsana, Gujrat)

² Xylazine, Brilliant, Bio Pharma Limited, Medak, A.P.

³ Ketamine hydrochloride - Aneket, Neon Pharmaceutical, Mumbai, Maharashtra

⁴ Isoflurane - Sosrane, Neon Pharmaceutical, Mumbai, Maharashtra

cleaned with diluted (1:50) povidone iodine⁵ and lubricated gently with neomycin eye ointment⁶.

Proptosed eye ball was replaced in its orbit successfully without affecting the other structures of eye. Lateral Canthotomy was not performed as per need during treatment. Temporary tarsorrhaphy was performed using silk no. 0 to retain the eye ball in orbit.

Post-operatively injection dexamethasone⁷ & gentamicin⁸ were administered subconjunctivally @ 2.2 mg & 20 mg, respectively (single injection). Eye drop moxifloxacin⁹ @ 3 drops *t.d.s* for 7 days, flurbiprofen¹⁰ @ 2 drops *b.i.d* for 5 days, visio care¹¹ *b.i.d* for 15 days were instilled. Injection ceftriaxone and tazobactam¹² @ 25 mg/kg *b.w.o.d.* and meloxicam¹³ @ 0.3 mg/kg *b.w.o.d.* for 3 days were administered intramuscularly. A commercially available Elizabethan collar was used until the tarsorrhaphy sutures were removed 2 weeks postoperatively.

Results and discussion

Keratitis sicca and optic nerve atrophy are the common sequel to proptosis which were not reported in this study for one month (Stephen, 2008) [10]. The ocular emergencies like proptosis can be treated with enucleation or replacement with tarsorrhaphy depending on the viability of extra-ocular tissue and eye (Mandell, 2005) [5]. In present case replacement with tarsorrhaphy without lateral canthotomy was done as a surgical management.

The favourable prognostic indicators for globe replacement surgery in brachycephalic dogs with traumatic proptosis such as presence of vision on initial examination, positive direct or consensual pupillary light response, and lack of posterior segment abnormalities were in accordance with (Miller, 2013) [6].

Ocular proptosis occurs predominantly in brachycephalic dogs in which a considerable degree of lagophthalmos and relative globe exposure are natural phenomena in such breeds (Mandell, 2000) [5] and (Spaulding, 2008) [9]. The present case report also witness the proptosis a brachycephalic breed.

Animal was recovered completely after 2 week of treatment without any complication.



Fig 1: Proptosed eyes in a Pug



Fig 2: Tarsorrhaphy sutures placed.

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⁵ Povidone iodine – Getadine-5%, Genpro Healthcare LLP, Patna

⁶ Neomycin eye ointment – Neosporin eye 5GM oint, Glaxosmithkline Pharmaceuticals Ltd., India

⁷ Dexamethasone – Dexona Vet, Zydus Animal Health, Cadila Pvt. Ltd.

⁸ Gentamicin – Gentalab, Laborate Pharmaceutical India Ltd.

⁹ Moxifloxacin – Mosi eye drops, FDC Ltd., India

¹⁰ Flurbiprofen – Flubifen eye drops, Sunways (India) Pvt. Ltd.

¹¹ Visio care – Visiocare, Savavet SAVA HealthCare Ltd. India

¹² Ceftriaxone and tazobactam - Intacef Tazo Pet, Intas Biopharmaceuticals, Ahmedabad, Gujrat

¹³ Meloxicam – Melonex, Intas Biopharmaceuticals, Ahmedabad, Gujrat