

## CASE REPORT

# Therapeutic Management of Corneal Ulceration in a Pug: A Case Report

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Corneal ulceration refers to corneal infiltration coupled with an adjacent epithelial defect and is one of the most frequent conditions of eye seen in small-animal medicine which is regarded as a major cause of blindness in dogs, either due to severe scarring or following corneal dehiscence (Ibrahim *et al.*, 2009; Startup, 1984). In a study corneal ulcer was accounted for 16.81% of cases presented with ocular affections and Pug breed of dog had the highest level of affection (Patel *et al.*, 2020). Corneal ulcer may develop as a consequence of variety of etiologies which includes trauma, irritants, tear film defects, abnormalities of eyelids, foreign bodies and others (Packer *et al.*, 2015). These etiological agents produce varied clinical signs in dogs such as corneal edema, excessive tear formation, constriction of pupil, blepharospasm, protrusion of nictitating membranes, redness of conjunctiva and photophobia (Belknap, 2015). Diagnosing corneal ulcers requires diagnostic techniques such as fluorescein dye staining, ophthalmoscopy and biomicroscopic procedures (Olivier, 2003). Confirmation of corneal ulcer can be achieved by dye staining techniques such as fluorescein dye, which is usually retained by the stroma in presence of ulcer giving a fluorescent green appearance (David and Wilson, 2012). Management of corneal ulcer firstly requires elimination of underneath etiology and therapy is focussed on avoiding bacterial infection, alleviating the discomfort of eye due to secondary uveal spasm, and preventing self-injury (Mary and Glaze, 2011). This case report communicates the successful therapeutic management of corneal ulceration in a Pug.

## CASE HISTORY AND OBSERVATIONS

A three-year-old intact male pug was presented to Veterinary Clinical Complex and Trauma Centre, College of Veterinary and Animal Sciences, Pantnagar (India) with a history of pain, irritation, and continuous lacrimation from the right eye since 1 week after an injury inflicted during playing. On detailed clinical examination, the animal was found to be apparently in good health. Ophthalmic examination revealed epiphora, blepharospasm, conjunctivitis, corneal opacity and evidence of corneal erosion with an indolent ulcer. Fluorescein dye staining was used to confirm the diagnosis. The strip was wetted with sterile distilled water before placing in the cul-de-sac. Any excess stain was then rinsed with sterile distilled

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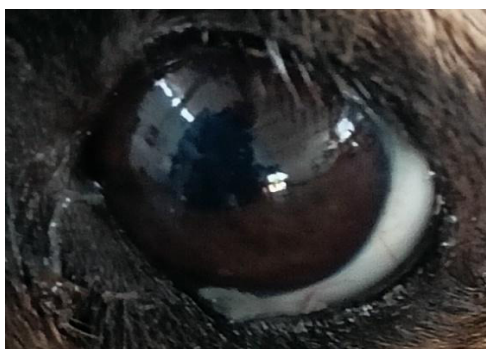
water. The eye was then examined after 2 min with both naked eyes and using an ophthalmoscope. Retention of the dye was evident thus confirming an ulcer.



**Fig. 1:** Corneal ulcer evident on presentation



**Fig. 2:** Status of ulcer 1-week post-treatment



**Fig. 3:** Recovery seen 2 weeks post-treatment

## TREATMENT AND DISCUSSION

Treatment was carried out with 2 consecutive subconjunctival injection of Placentrex, an extract of human placenta @ 1 mL, one week apart, in adjunction with autologous serum therapy as eye drops (3 drops twice daily for 3 weeks). Antibiotic eye drops Tobramycin and anti-inflammatory Flurbiprofen eye drops (3 drops thrice daily each for 5 days) were also administered. The case was successfully managed with complete recovery in 2 weeks following treatment.

Dogs like Pug belonging to brachycephalic breed are more susceptible to corneal ulcer due to incidence of features such as protruding eyes, abnormal closure of eyelids which make them immensely prone to corneal injury (Kim *et al.*, 2009). Epiphora, blepharospasm, conjunctivitis, corneal opacity and evidence of corneal erosion observed as the primary clinical manifestations in this case were similar with the report of Arantes-Tsuzuki *et al.* (2019) in a Poodle dog affected with corneal ulcer. Fluorescein dye test is often regarded as a standard test for diagnosis of corneal ulcer (Watal *et al.*, 2020), hence was used in the present case. Along with conventional treatment, autologous sera and placentrex were used in management of this particular case. Autologous sera contains factors essential for escalation, differentiation and maturation of surface epithelium of eye which facilitates quick recovery of epithelial defects (Antuia *et al.*, 2015; Bhardwaj (2016). Placentrex regulates prostaglandin secretion by repression of cyclooxygenase thereby having anti-inflammatory action and has a role in clotting pathway and collagen synthesis. Moreover, it shows immunostimulant action by increasing IgM, IgA, and lymphokines (Chakraborty and Bhattacharyya, 2012). These properties supported effective use of placentrex in corneal ulcers. Effectiveness of placentrex in eye disorders such as corneal ulcer was studied by Arunachalarn *et al.* (2001) who found good recovery in sheep when injected subconjunctival. The present case study suggests that subconjunctival injection of placentrex and eye drops of autologous sera along with conventional therapy can be effective in treating corneal ulcer in dogs.

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