

Clinical Management of Corneal Ulcer by Chemical Cauterization using Silver Nitrate

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ABSTRACT

The aim of this study was to devise the method of treatment of corneal ulcer in dogs which is very common in some breeds of dog. Earlier it was treated with some topical antibiotics but it was not successful as desired. In this study the cauterization of ulcer was done with silver nitrate, which was found to be very cheap and successful both in terms of financial and recovery parameters.

Keywords: Cauterization, Silver nitrate, Conjunctiva, corneal ulcer

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INTRODUCTION

The cornea is transparent, densely innervated, avascular, and the major refractive structure of the eye. A healthy cornea achieves and maintains transparency due to the organization of constituent cells and collagen fibers, as well as its relatively dehydrated state. Anything that alters this organization or deturgescence leads to development of a corneal opacity. As the outer and most exposed structure of the globe, the cornea is not only at risk for trauma, but also often receives close attention from clients. As such, a presenting complaint of corneal opacity is common in veterinary practice. Correct interpretation of corneal changes is critical for diagnosing corneal disease as well as many other ocular and some systemic diseases. Therefore, appropriate diagnostic tests and prompt initiation of optimal therapy are required to maximize the chance of saving vision, producing a comfortable globe and, occasionally, saving the patient's life. A corneal ulcer is erosion through the whole epithelium and into the stroma. It is very common in dogs and is sometimes seen in cats. It is caused by trauma, including self-inflicted and that due to eye lid abnormalities, thermal and chemical burns, immune mediated, facial paralysis and forms of exposure keratitis and absence of the protective tear film; also infections with bacteria, viruses and fungal elements [Barnett \(2006\)](#). If the erosion goes through the epithelium and stroma to the level of Descemet's membrane, it is termed: descemetocoele. If Descemet's membrane ruptures, the liquid that is normally inside of the eyeball leaks out and the eye actually collapses. Highest incidences of corneal ulcer are found Pug, Spitz, Boxer and Labrador ([Ben-Shlomo et al. 2010](#)).

MATERIALS AND METHODS

The present study has been carried out on 50 dogs with different ophthalmic affections presented to the Teaching Veterinary Clinical Complex (TVCC), Bihar Veterinary College Patna. The dogs were showing symptoms of constant closure of eye, blindness, corneal opacity, epiphora, anorexia,

fever etc. Corneal ulcer was confirmed in 8 dogs on the basis of gross examination and fluorescein sodium stain. External ophthalmic stain (fluoresceine sodium) was used in the detection of corneal and conjunctival defects, i.e., corneal ulcer. The fluorescein sodium stain was taken up by exposed corneal stroma and appears green, helps in defining the margins the corneal ulcer.

Fluorescein sodium strip was moistened with sterile 0.9% saline and touched to the dorsal bulbar conjunctiva. After the instillation of the fluorescein on the bulbar conjunctiva, the eyelids were then closed, or the patient was allowed to blink. The stain was subsequently distributed across the corneal and conjunctival surface. Eye was gently flushed after staining. It removed any excess fluorescein and simplified the diagnosis of both corneal and conjunctival lesion. After confirmation of corneal ulcer dogs were treated with ophthalmic antibiotic drops (ofloicin eye drop), Atropine ointment and chemical cauterization of ulcer with silver nitrate 1% solution.

RESULTS AND DISCUSSION

In present study corneal ulcer was seen in 8 dogs out of which 2 were males and 6 were female. Fluorescein sodium strip defined the margins of the corneal ulcer. Corneal ulcer healed in 1 week period. All dogs recovered uneventfully. The majority of corneal ulcers were traumatic in origin and these respond well to medical therapy alone. Similar observations were made by [Hazra and Palui \(2011\)](#). [Ramani et al. \(2012\)](#) reported highest incidences of corneal ulcer in pug, spitz, boxer and Labrador. The similar pattern of incidence of corneal ulcer was observed in present study. Corneal ulcer affected dogs had lacrimation, blepharospasm and periocular swelling, blindness as predominant clinical signs. Fluorescein stain was applied to the affected eye and diffuse corneal uptake of stain was noted. A diffused superficial corneal ulceration was diagnosed. Similar observation and diagnosis procedure was made by [Brutlag et al. \(2011\)](#) and [Singh et al.](#)

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(2016). Kern (1990) also reported that because of its high frequency, corneal ulceration might not routinely stimulate the clinical concern for rigorous diagnosis, attentive management and aversion of potential complications that it merits. Healing took place in 2-3 weeks. From present study it can be concluded that the cauterization with 1% silver nitrate along with topical antibiotic therapy augment the healing of corneal ulcers as evident from clinical recovery.

Table 1: Changes in Hematological parameters in clinically affected dog.

Parameters	Values	Reference
RBCs count (x106/ μ l)	4.36	5.5-8.5
Hb (g%)	8.6	12-18
PCV (%)	28.2	37-55
Neutrophils (x106/ μ l)	14.2	15-39
Eosinophils (x106/ μ l)	1.2	0.1-1.25
Basophils (x106/ μ l)	0.8	0
WBC count (x103/ μ l)	9	5-9
Lymphocyte (x103/ μ l)	32	1-4.8
Granulocyte (x103/ μ l)	5	5-5.5

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Fig. 1: Showing the corneal opacity and ulcer



Fig. 2: Showing the complete recovery from corneal opacity and ulcer.

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