



Grid Keratotomy for Treatment of Atypical Presenting Indolent Corneal Ulceration in a Boxer

*SARBANI HAZRA and HIMANGSHU PALUI.

Dept of Veterinary Surgery & Radiology, West Bengal University of Animal and Fishery Sciences, 37&68 Kshudiram Bose Sarani, Kolkata-700037, India *Correspondence: shazrakon@yahoo.co.in

INTRODUCTION

Corneal ulcers are one of the highest causes of vision impairment in dogs. The Boxer breed is particularly predisposed to recurrent and refractory corneal ulcers (Whitley and Gigler, 1999). In this report we present an interesting case of indolent corneal ulcer in a Boxer with atypical clinical manifestation and features, and its successful treatment by grid keratotomy. Boxer ulcers which are also synonymously termed as refractory epithelial erosions, indolent ulcers, recurrent corneal erosions syndrome, rodent ulcers, are superficial corneal ulcers that heal either slowly or poorly (Gelatt 1970, Whitley and Gigler, 1999). Some characteristic features that help to recognize the condition are overlapping lip of non adherent epithelium present around the ulcers edge and stain positive to fluorescein stain and usually occurs bilaterally (Whitley and Gigler, 1999). In our present case the above commonly occurring features were however not present, but after making critical differential diagnosis and considering the breed predisposition the case was identified as an indolent corneal ulcer, and was successfully treated following grid keratotomy. This is an interesting case report on atypical presentation of a boxer ulcer; similar findings have not been reported previously.

KEYWORDS: Keratotomy, Treatment, Corneal ulcer, Boxer

CASE HISTORY

An eight year old intact male boxer was presented at the Teaching Hospital of West Bengal University of Animal and Fishery Sciences, with history of blindness and signs of severe pain in right eye and blepharospasm. A local veterinarian had prescribed broad spectrum topical antibiotic and anti-inflammatory drops; but there had been no positive response to the treatment for the past three weeks. Upon ophthalmic examination and

slit lamp biomicroscopy, an area of central superficial corneal involvement was diagnosed, surrounded by heavy corneal vascularization, and diffused corneal edema. Scleral injection was recorded (Fig A&B). Fluorescein test was negative. Adjacent areas around the upper and lower lid showed signs of congestion and hemorrhage. A schirmer tear test was performed, following which the intraocular pressure was recorded (Tonopen). Corneal scrapping was obtained prior to surgery.

Differential diagnosis for indolent corneal ulcer based on its clinical appearance included fungal or bacterial keratitis, keratoconjunctivitis sicca and stromal abscess. Negative microbial growth, normal tear formation and absence of uveitis ruled out the other possibilities, and it was taken into consideration that the lesion was an indolent corneal ulcer.

It was decided to plan surgical intervention, by performing grid keratotomy; the dog was anesthetized with a combination of atropin sulphate at 0.02mg/kg bdwt, xylazine HCL at 1mg/kg bd wt and ketamine HCL at 5mg/kgbdwt. Surgical site was prepared by clipping the eye lashes and painting with povidone iodine. 4%Lignocain HCL was used as topical anesthetic, a wire eyelid speculum was used to retract the eyelids. A sterile 20 gauge disposable needle was used to perform grid keratectomy i.e. the corneal epithelia and anterior stroma were incised numerous times in grid pattern keeping the distance between two grids 1mm apart. Temporary tarsoraphy was done to protect the corneal surface a portion was left open for topical drug instillation. Post operative therapy included topical instillation of ciprofloxacin qid, flubiprofen qid, atropin sulphate tid and carboxymethylcellulose sodium lubricant eye drops bid. The weekly progress was

monitored till complete cure. Obstacle test with healthy eye patched was performed to assess the restoration of vision.

RESULTS

The test for the culture for corneal scrapping was negative for bacteria or fungus.

The Schirmer tear test (STT) results of affected eye were recorded as 15mm/min, and intraocular pressure (IOP) was 18mm Hg. The values were normal for dog. The anterior chamber could not be viewed by slit lamp biomicroscope due to severe corneal edema, but the normal intraocular pressure indicated absence of uveitis.



Fig C; Two weeks after surgery progressive improvement of lesion and gradual resolution of vascularization.

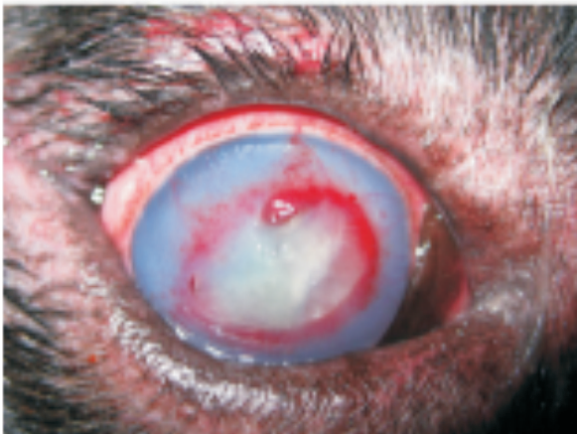


Fig A; Patient with severe corneal indolent ulcer

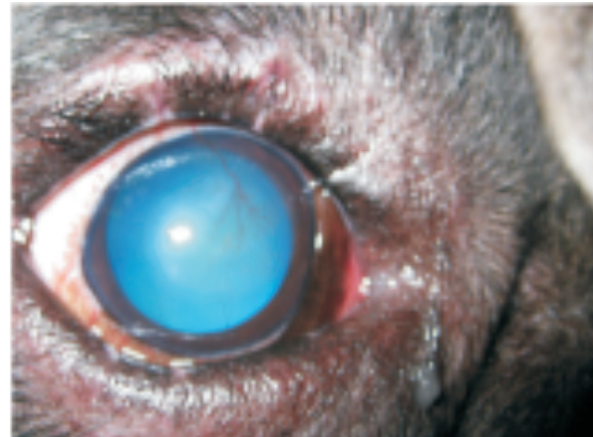


Fig D; Third week after surgery shows almost complete resolution of lesion and vascularization.

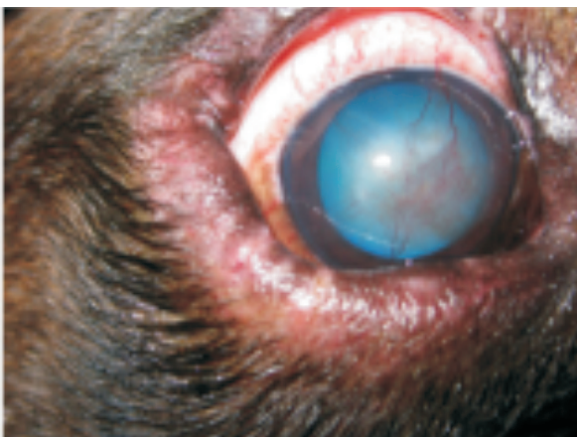


Fig .B; One week post surgery shows remarkable resolution of abscess and infiltrating corneal vascularization from all sides of the cornea.

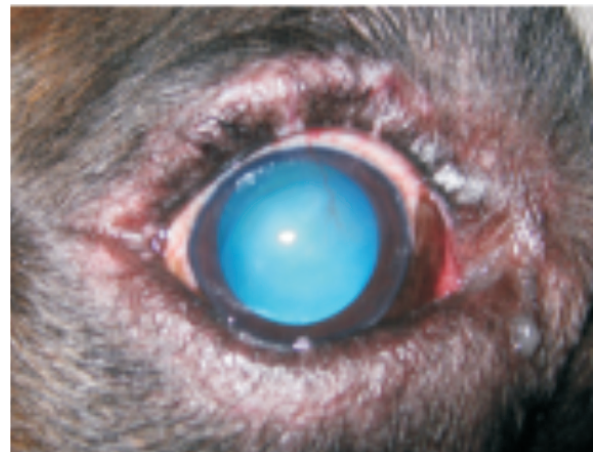


Fig E; One month post surgery complete regression was evident with slight scarring at the site of the corneal lesion.

There was remarkable improvement at the end of the first week following surgery; the corneal vascularity had resolved considerably, the scleral injection had also improved in comparison to initial condition (Fig 1A,B). In the subsequent three weeks the progress towards healing was consistent (Fig 1 C,D). By the end of one month post surgery complete regression was evident with slight scarring at the site of lesion and minimum corneal vascularization (Fig 1 E). The dog could pass the obstacles with healthy eye patched.

DISCUSSION

Corneal ulcers are probably the most common ocular surface disease of the canine eye seen in general veterinary practice. Majority of corneal ulcers which result from either traumatic or irritating conditions, respond well to medical therapy alone. Indolent ulcers also known as Boxer ulcer, refractory superficial ulcer, epithelial basement membrane dystrophy are however different, they are superficial ulcers that result from structural defect of the cornea. The ulcers are usually breed related which develop spontaneously and may affect both eyes eventually. Typical diagnostic clinical features of this condition include photophobia; blepharospasm and epiphora. The vascular response is seen in chronic lesions, superficial ingrowth of blood vessels into the cornea are seen originating from the limbus. The appearance of a loose or redundant epithelial margin surrounding the ulcer is pathognomonic to this condition. Fluorescein stain aids in the diagnosis, the dye not only stains the ulcerated area, but also migrates under the loose flaps of the epithelium and stains the surrounding anterior stroma, and this makes the ulcer appear larger than the actual size (Whitley and Gigler, 1999, Moore 2003, Janssens, 2007). What makes our present case interesting and atypical was that the corneal lesion was unilateral considering the breed predisposition; the lesion was negative to fluorescein test, negative to bacterial or fungal growth. There was absence of redundant margin surrounding the ulcer. In differential diagnosis we ruled out stromal abscess as it is invariably associated with iridocyclitis, and we ruled out uveitis y grid

considering the normal intraocular pressure, since the anterior chamber could not be viewed in presence of severe corneal edema. Normal tear formation and absence of any structural abnormality suggested the lack of secondary cause for delayed healing. The probable cause of a negative fluorescein test could be presence of a very small crack on the overlying epithelium. Grid keratotomy along with epithelial debridement is the method of choice for surgical management of indolent ulcers (Chavkin *et al.*, 1990; Wilkie and Wittaker, 1997; Stanley *et al.*, 1998; Chandler *et al.*, 2010) in the present case the response was very favorable and the lesion healed by one month. Although there have been numerous reports of indolent ulcers in various species including dog (Gelatt,1970; Jones *et al.*,2007) we hereby report an atypical appearing corneal indolent ulcer in a boxer and its successful management by grid keratectomy

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