

## INDOLENT CORNEAL ULCERS IN DOGS

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### **Abstract**

*Indolent or refractory corneal ulcer is a chronic, superficial, nonhealing erosion, usually affecting older dogs, especially Boxers. Its characteristics are failure to heal within 1-2 weeks, a poor attachment of the epithelium surrounding the lesion to the corneal stroma and the fluoresceine staining of the affected area. The goals for the treatment of indolent ulcer are removing the loose epithelium, promoting the healing process and protection of the cornea.*

*This article presents the medical treatment of refractory corneal ulcers in dogs and the importance of using contact lenses for reducing the healing time.*

**Key words:** Boxer dog, contact lenses, indolent corneal ulcer.

### **INTRODUCTION**

Indolent corneal ulcerations or chronic corneal epithelial defects (CCEDs) are superficial ulcerations with no tendency to resolve, surrounded by a ring of non-adherent epithelium, usually occurring in middle-aged dogs. (Bentley, 2005; Moore, 2003).

In the majority of cases the etiology is not clear, but it is known that there is a lack of adhesion of the corneal epithelium to the anterior corneal stroma. (Bonagura, Twedt, 2008).

The typical clinical signs are moderate pain with blepharospasm and epiphora, the fluorescein staining of the affected area and the lack or superficial vascularization of the lesion. (Michau, 2008). The diagnosis relies also on the ease with which the loose epithelium is debrided with a cotton-tipped applicator. (Slatter, 2008).

The initial therapeutic approach consists in removing the non-adherent epithelium, after using a local anesthetic. Afterwards, it is recommended to place a contact lens for the protection of the new formed epithelium. (Lefranc, 2003). If the lesion is not improving, other methods of treatment include grid keratotomy or superficial keratectomy. (Johnson B et. Al., 1998)

This paper presents the advantages of using the corneal contact lenses as a less invasive method

of treatment for the indolent corneal ulcer and for reducing the healing time.

### **MATERIALS AND METHODS**

This study was conducted in the Ophthalmology Clinic of the Faculty of Veterinary Medicine in Bucharest for a period of one year and a half, between 2010 and 2012. The examined animals were represented by five dogs, 3 males and 2 females, with an average age of 7 years.

In all of the cases, after removing the nonadherent epithelium, a soft contact lens was placed and a treatment with an antibiotic collyre, a mydriatic and an anticollagenase drug was instituted.

In order to realize the debridement, anesthetizing the cornea using a local anesthetic such as benoxicaine collyre was sufficient enough.

The methods used for establishing the diagnosis were represented by examination with a light source and with the magnifying loupe, the fluoresceine test and ophthalmoscopy.

The therapeutic contact lenses may be used when healing of a corneal lesion is delayed. There are two types of contact lenses that can be utilized in dogs, the veterinary ones or the contact lenses used in people. Both of them are soft, adhere to the surface of the cornea, acting as a bandage and are permeable for eye drops.

## RESULTS AND DISCUSSIONS

The five dogs presented in this study with indolent corneal ulcers were represented by one Border Collie, one Boxer, one Terrier and two mixed breed dogs, three females and two males, with ages between seven and fourteen years old.

Loti, a seven years old female mixed breed dog, presented with a history of epiphora, blepharospasm, and at the ophthalmological examination a central corneal lesion, without vascularization, that fixed fluoresceine was seen in the left eye (Figure 1).



Figure 1. Central corneal erosion, fluoresceine positive

After local anesthesia of the cornea, the nonadherent epithelium was debrided (Figure 2), a veterinary contact lenses was placed and the treatment for corneal ulcers was instituted.



Figure 2. Debridment of the nonadherent epithelium using a sterile cotton tipped applicator

The contact lens stayed on the surface of the cornea just for 2 days.

At the reexamination after 10 days, corneal vascularization was seen, and the fluoresceine test was negative (Figure 3).

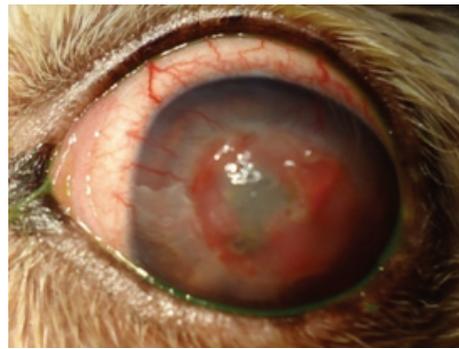


Figure 3. After 10 days vascularization and a negative fluoresceine test can be seen

At this moment the recommended treatment was a systemic and local antibiotic and artificial tears. The corneal lesion was completely healed after one month.

Kity, an eight years old female Boxer, presented at the clinic with a diagnosis of refractory ulcer in the left eye that had been treated with local antibiotics and collagenase inhibitors, but that had not healed after 4 month.

At the first examination, the clinical signs were blepharospasm, epiphora and the presence of a superficial corneal erosion that stained the fluoresceine. The recommended treatment was a veterinary contact lens, along with a local antibiotic and artificial tears. After 5 days of treatment, there was some vascularization and the fluoresceine test was negative (Figure 4).

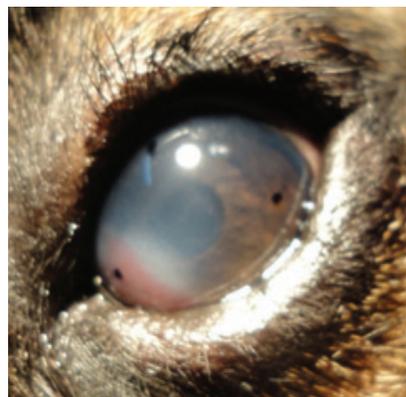


Figure 4. After 5 days from the initial examination (the black spots are indicating the presence of the contact lens at the surface of the cornea)

After 2 weeks, there was just a small corneal scar and some superficial vessels (Figure 5).

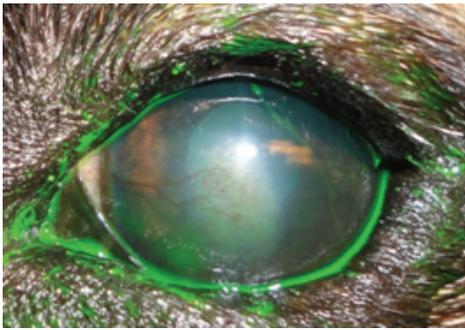


Figure 5. After 2 weeks: superficial vascularization, negative fluorescein test

Bruno, an eight years old male mixed breed dog, came for an ophthalmologic examination because the owner observed that his dog was keeping the left eye closed and had excessive lacrimation. At the examination an irregular, fluorescein positive lesion was seen, along with some superficial blood vessels (Figure 6).

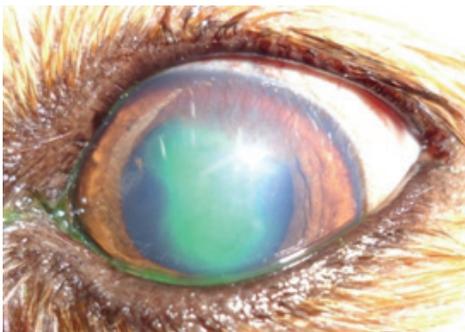


Figure 6. Central corneal superficial erosion, that stained fluorescein

The treatment consisted in debriding the nonadherent epithelium, placing a human therapeutic contact lens and using a collyre with antibiotic and an anticollagenase drug. The ulcer was healed after 2 weeks time.

Coty, a thirteen years old male Border Collie, presented at the ophthalmology clinic with a history of a recurrent corneal lesion in the right eye. The dog received different ocular treatment, but with no response. The clinical signs were photophobia, blepharospasm and epiphora. After instillation of the fluorescein, a superficial erosion could be seen in the center of the cornea (Figure 7).

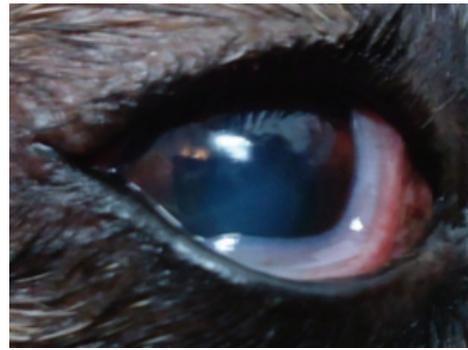


Figure 7. Superficial erosion, with no vascularization, in the center of the cornea

A human therapeutic contact lens was placed after anesthetizing the cornea and the recommended eye drops was an anticollagenase collyre. After 10 days, the indolent ulcer was completely healed (Figure 8).



Figure 8. Healing of the corneal erosion, with no vessels of neoformation or scarring and negative fluorescein test

Linda, a fourteen years old female Terrier, came for an ophthalmologic examination because after one month of treating a corneal ulcer, the clinical signs did not improved. The left eye presented with blepharospasm, epiphora and a superficial erosion that stained fluorescein (Figure 9).

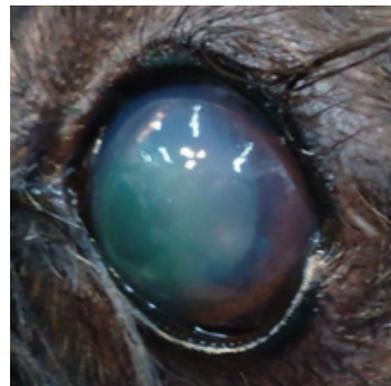


Figure 9. Indolent corneal ulcer, with no vascularization and fluorescein positive

The treatment consisted in removing the nonadherent corneal epithelium after local anesthesia of the cornea (Figure 10) and placing a therapeutic contact lens (Figure 11).

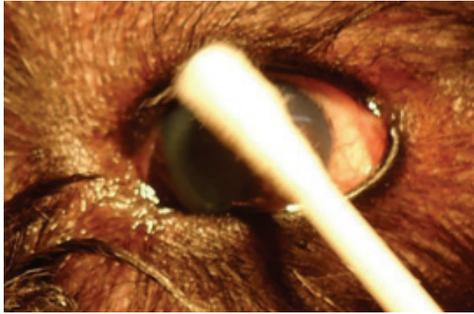


Figure 10. Debridement of the nonadherent epithelium using a sterile cotton tipped applicator

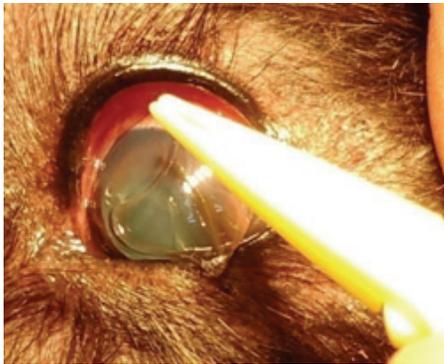


Figure 11. Placing the therapeutic contact lens using a special, soft forceps

At the reexamination after 2 weeks, the clinical signs were not present any more and the cornea was healed.

## CONCLUSIONS

Indolent corneal ulcer is a common ocular disease, most often affecting middle-aged dogs, especially Boxers, Terriers and mixed-breed dogs.

This study has been performed on 5 dogs with refractory corneal ulcer whose treatment was based on the use of therapeutic contact lenses along with local collyres with antibiotics, mydriatic and anticollagenase drugs such as acetylcysteine.

Veterinary contact lenses have the advantages of presenting different diameters for different corneal size, they can be kept for a long time on the surface of the cornea and can be reutilized after sterilization.

Human therapeutic contact lenses are cheap, they can be changed daily, but they also may remain attached to the corneal surface for many days.

By adding the use of therapeutic contact lenses in the treatment of indolent corneal ulcers the healing time was reduced.

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