



# Animal Eye Clinic

## of Waterloo Region

405 Maple Grove Road, Unit 14  
Cambridge, Ontario N3E 1B6  
Ph: 519.654.2040  
Fax: 519.658.5060  
Email: [office@myeyevet.ca](mailto:office@myeyevet.ca)  
[www.myeyevet.ca](http://www.myeyevet.ca)

**Dr Nick Whelan BVSc, MVSc, MACVSc, Diplomate ACVO & ACVCP**

## **INDOLENT CORNEAL ULCER**

### **What is an indolent ulcer?**

An indolent ulcer is also known as a non-healing ulcer and occurs in the cornea. The cornea is the transparent part at the front of the eye. It is about 1 mm thick and consists of four layers: epithelium, stroma, Descemet's membrane, and endothelium. When an ulcer is healing normally, the surface layer of epithelial cells migrate across the ulcer and attach to the stroma using structures called hemidesmosomes. In indolent ulcers, the epithelial cells have difficulty making these attachments to the stromal layer and the ulcer doesn't heal normally. Because the cornea is well supplied with nerves, these ulcers are extremely painful.

### **What causes indolent ulcers?**

Indolent ulcers occur primarily in middle-aged or older animals and can be more common in certain breeds of dogs. Examples include:

American Cocker Spaniels  
Boxers  
Corgis  
Lhasa Apsos

Poodles (Toy and Miniature)  
Dachshunds  
Golden Retrievers

The specific cause of this type of ulcer is unknown. It is suspected that they represent a type of primary (i.e. inherited) corneal epithelial or anterior stromal dystrophy due to the fact that these ulcers are often breed-related, develop spontaneously, and may affect both eyes. In most cases the ulcers are considered primary, which means that there is no underlying cause.

Occasionally there may be secondary ocular diseases that can predispose an animal to recurrent corneal ulcerations, such as:

- Eyelash abnormalities - distichiasis, ectopic cilia, trichiasis
- Eyelid abnormalities - entropion, poor eyelid conformation, lagophthalmos
- Tear film abnormalities - keratoconjunctivitis sicca ("dry eye"), tear film mucin-deficiencies
- Neurological abnormalities - facial nerve paralysis, neurotrophic keratitis
- Corneal abnormalities - corneal edema, chronic uveitis, primary endothelial dystrophy and/or degeneration

### **What will I see if my pet has an indolent corneal ulcer?**

These ulcers can be incredibly painful. Common signs and symptoms include:

- History of corneal ulceration
- Squinting and light sensitivity
- Discharge from the affected eye(s)
- Redness of the eye
- Cloudiness of the cornea
- Behavioural changes
- Loss of appetite



# Animal Eye Clinic

## of Waterloo Region

405 Maple Grove Road, Unit 14  
Cambridge, Ontario N3E 1B6  
Ph: 519.654.2040  
Fax: 519.658.5060  
Email: [office@myeyevet.ca](mailto:office@myeyevet.ca)  
[www.myeyevet.ca](http://www.myeyevet.ca)

### How are indolent ulcers treated?

Healing of indolent ulcers may take weeks to months and recurrence is common. Treatment of an indolent ulcer requires the removal of any abnormal epithelial cells and the exposure of normal stroma. There are three procedures that are commonly used:

1. **Debridement** of the loose corneal epithelial cells using a dry sterile swab. The loose epithelium is removed in a radiating pattern once the patient has been sedated and topical anesthetic has been applied. After this procedure the ulcer will initially be larger, but the debridement will allow the normal epithelium to adhere properly to the stromal surface. A soft contact lens may be placed over the ulcer to act as a bandage. This method may be used alone (in conjunction with medical treatment), or in conjunction with a keratotomy.
2. **Keratotomy** – may be either striate or punctate. This procedure can be done on patients using sedation and a topical anesthetic, depending on the temperament of the animal. In high strung or aggressive animals general anesthesia may be necessary. The abnormal epithelial cells are removed as above, and then a sharp needle is used to make tiny lines or dots in the exposed stroma to provide anchors for the new epithelial cells. A soft contact lens is placed on the eye to act as a bandage. Although 90% of indolent ulcers heal with this treatment, some animals may require further intervention in the form of a keratectomy.
3. A **keratectomy** is a surgical procedure performed under general anesthesia. An operating microscope is used to visualize the layers of the cornea and a thin layer of the corneal stroma is removed. After surgery, a soft contact lens will be applied to the eye to act as a bandage. The success rate of this treatment is 99%.

All of the above procedures are followed with medical treatment consisting of: topical antibiotics to prevent infection of the cornea, topical (and sometimes oral) anti-inflammatories, and in some cases topical atropine for pain management and/or topical salt solution to dehydrate the stroma. In **ALL** cases an Elizabethan collar must be worn by the dog **at all times** to ensure that the animal does not rub the eye(s) and disrupt the healing process.

### What will I need to do at home?

Although it may be frustrating, indolent ulcers generally take a long time to heal. During the healing process we will likely need to see your pet on a weekly basis to monitor progress.

It is important that you follow these guidelines:

- Administer all medications prescribed. Follow instructions given by the ophthalmologist for care and medication.
- Keep the Elizabethan collar on your pet at all times to prevent self-trauma.
- Wipe discharge from the eye using a clean paper towel or tissue.
- If you have questions or concerns, please contact us for advice.