



Autumn 2009  
Newsletter

Welcome to the Eye Vet newsletter. Eye Vet is a veterinary ophthalmology referral service run by Natasha Mitchell MVB CertVOphthal MRCVS through Crescent Veterinary Clinic, Dooradoyle Road, Limerick.

This newsletter is produced quarterly, and is also available online at [www.eyevet.ie](http://www.eyevet.ie)

Next Newsletter...

The next newsletter will be produced in Winter 2009 and will review the Schirmer Tear Test

## Examination Technique

### Using fluorescein stain.

Using fluorescein stain is straight-forward, but it is possible to get it wrong. Fluorescein is a water-soluble ophthalmic dye available as sterile single-use vials (Minims Fluorescein 1% or 2%, Chauvin) or as impregnated paper strips (Fluorets, Chauvin) which need to be moistened by a drop of saline or topical anaesthetic (see [figure 1](#)).

One drop is applied and excess dye must be then flushed from the eye – otherwise it pools in any irregularities on the corneal surface and appears like uptake of dye. The dye is highly lipophobic and hydrophilic, and therefore does not remain in contact with an intact corneal epithelium with its lipid cell membranes.

However with corneal ulceration, there is a breach in the corneal epithelium, leaving the stroma exposed which absorbs and retains fluorescein. Descemet's membrane does not uptake fluorescein; therefore a clear area at the base of a deep defect in the cornea is a bad sign, as the ulcer is very deep and in danger of rupturing (as in [figure 5](#)).

Observing fluorescein stain uptake is greatly enhanced by examining with a blue light – using a Wood's lamp, a blue filter attached to the end of your pen torch or your ophthalmoscope which may contain a blue filter. The stained cornea may be shown to the owners which can help them to understand their pet's problem. Every painful, red or inflamed eye should have fluorescein stain to check for corneal ulceration routinely.



Fig 1



Fig 2

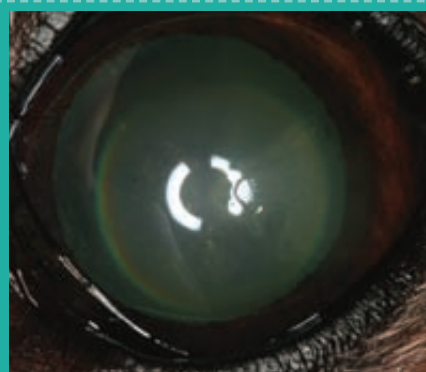


Fig 3: The corneal ulcer is difficult to see without staining, note the nuclear sclerosis you learned about in the [Spring 09 newsletter](#)!

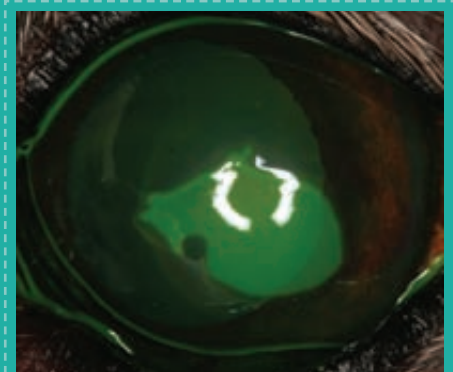


Fig 4: Fluorescein highlights the ulcer.

### Uses:

- » Diagnosis of corneal ulcers
- » Highlights under-run epithelium, present in superficial corneal erosions
- » Diagnosis of a descemetocoele, which is an emergency situation
- » It may appear at the nares and sometimes the mouth in 5-10 minutes, which confirms naso-lacrimal duct patency (see [figure 2](#))
- » It can show whether or not a cornea is ruptured by highlighting aqueous humour leakage

## Clinical Case

A ten-year-old male entire English Springer spaniel presented with a one week history acute keratoconjunctivitis sicca with a STT result of zero in both eyes. He had been started on topical cyclosporine ointment twice daily (Optimmune, Intervet Schering-Plough), Chloromycetin eye drops four times daily along with oral antibiotics and NSAIDs. On examination, the eyes were very uncomfortable and were held shut, with a thick tenacious muco-purulent ocular discharge. The STT reading was 3 and 6mm/minute in the left and right eye respectively. Application of topical local anaesthetic improved ocular comfort, facilitating further examination.

The left cornea was very lack-lustre and there was peripheral corneal neovascularisation. There was no uptake of fluorescein stain. The right cornea was also dull and there was a large corneal deficit laterally with a clear window of Descemet's membrane at the base, which did not uptake fluorescein stain. There was corneal oedema and neovascularisation. Medial to this area was a second smaller fluorescein positive area of stromal corneal ulceration.



Fig 5: Right eye at initial presentation



Fig 6: Left eye at initial presentation

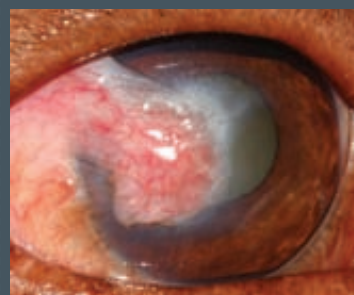


Fig 7: Right eye four weeks after a conjunctival pedicle graft

## Diagnosis

Bilateral acute keratoconjunctivitis sicca (KCS) of unknown cause. Descemetocoele in the right eye along with a smaller corneal ulcer centrally.

## Tip

Never do a grid keratotomy on deep ulcers – this procedure is useful only for superficial erosions in dogs with under-run loose epithelium at the edges. The danger is that infection could be introduced in an already vulnerable eye, or that the globe may rupture.

## Treatment

As there has been some response to Optimmune, the right eye was salvageable but surgical repair would be required to provide structural support and healing, and to prevent corneal rupture.

Under general anaesthesia, the descemetocoele was repaired with a conjunctival pedicle graft using an operating microscope and 8/0 Vicryl suture material. He was discharged with a buster collar, topical ofloxacin (Exocin) six times daily in the right eye for one week, Optimmune twice daily in both eyes and carbomer gel artificial tears (Vidisic) as often as possible in both eyes.

## Prognosis

Reasonable with on-going care. Optimmune can take four to six weeks before it induces maximal tear production. Optimmune will need be continued life-long, and is safe to use despite the presence of corneal ulceration. The eye was re-examined four weeks after surgery ([figure 7](#)).

The STT reading was 18mm/minute and the cornea appeared healthy and moist. The conjunctival pedicle graft was incorporating well into the cornea.

*Plan:* The pedicle of the graft will be cut six weeks after surgery. On-going monitoring with regular Schirmer Tear Tests will be required.

A folder to keep all of your Eye Vet newsletters together is available. To request one, please email [natasha@eyevet.ie](mailto:natasha@eyevet.ie)

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