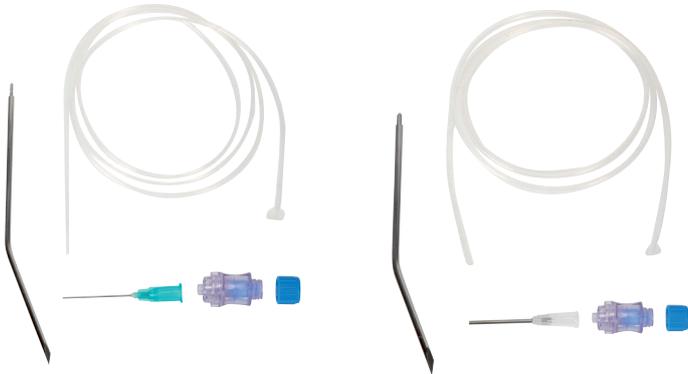




# *How to place the **EQUIVET** Ocular Lavage Kit*

Professor Derek C Knottenbelt OBE, BVM&S, DVMS, DipECEIM, MRCVS - European Specialist in Equine Internal Medicine - RCVS Specialist in Equine Internal Medicine - Philip Leverhulme Hospital - University of Liverpool - Leahurst - UK

The lavage system comes packed in a sterile single-use pack.

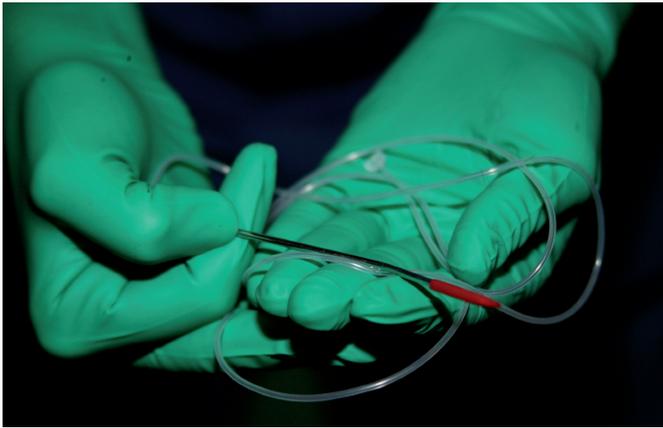


The lavage system comprises a solid angled introducer with a protective sheath and a connected silicone tube. The tube has a flat, soft silicone flange with perforations continuous with the lumen of the tube.

**EQUIVET**

EXPERIENCE · QUALITY · SERVICE  
[www.kruuse.com](http://www.kruuse.com)





**Note:**

Two sizes of tubing are available 5 Fr & 8 Fr. In the event that a more viscous material such as plasma or high volumes are to be used, the thicker gauge tubing system should be used.



**Figure 1:**

Following sedation, proxymetacaine ophthalmic topical anaesthetic is instilled into the conjunctival sac. This anaesthetises the conjunctival mucous membrane. This material may take some minutes to work fully and often 2 or 3 droplets need to be used.



**Figure 2:**

The eyelid over the expected egress point (arrow) is clipped and prepared aseptically taking particular care not to further damage the eye.



**Figure 3a, b, c:**  
A frontal (sensory) block anaesthetises the skin of the upper eyelid

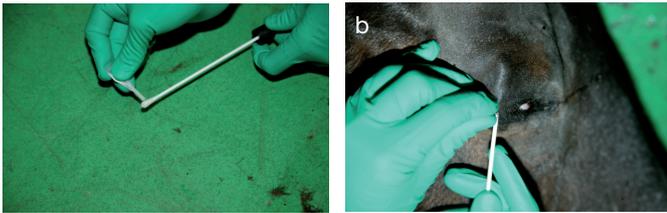
(a). An auriculo-palpebral (motor) nerve block paralyses the upper eyelid



(b). If the frontal block is not effective a small bleb of local anaesthetic (such as mepivacaine) can be placed subcutaneously over the expected exit port (arrow in Figure 2).

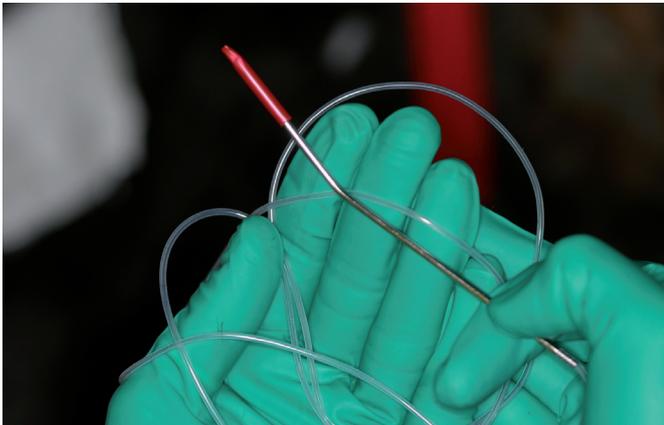


(c) shows the correct placement for both of the major regional blocks.



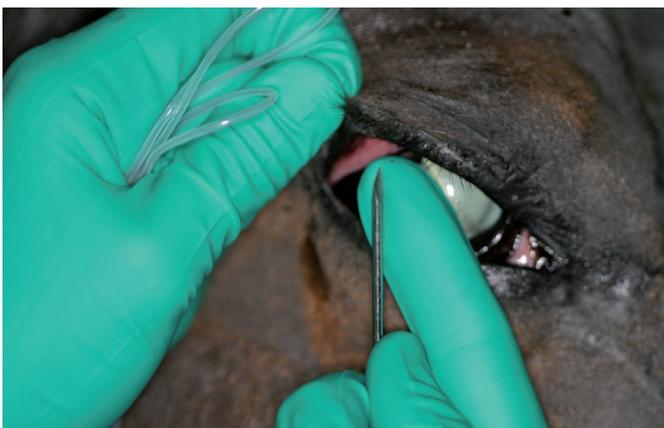
**Figure 4a / b:**

Proxymetacaine is reinstilled into the conjunctival sac and an anaesthetic soaked swab is gently inserted under the eyelid up against the expected penetration point in the dorso-lateral conjunctival fornix. This will act as further test for the efficacy of the block.



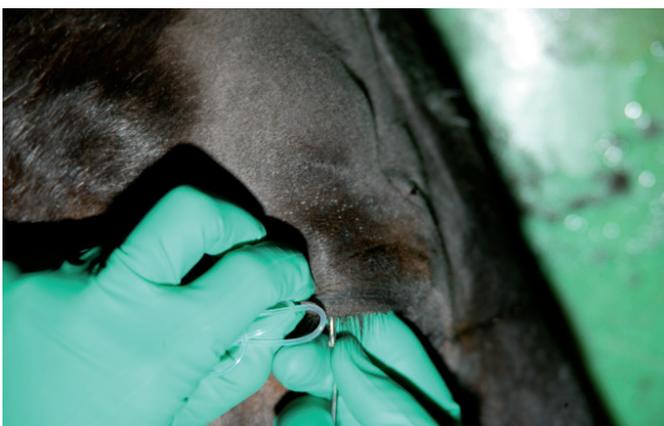
**Figure 5:**

After surgical preparation the lavage system pack is opened onto a sterile drape. The introducer is grasped and the protective end is removed. As far as possible the sharp end is not touched at all.



**Figure 6:**

With protection for the eye afforded by a finger or a spatula the introducer is directed into the dorso-lateral conjunctival fornix and gently touched against the orbital bone. This will 'grip' the conjunctiva.



**Figure 7:**

The point of the introducer is held gently against the bone and the point is pulled towards the operator so that it "walks off" the dorso-lateral orbital rim and can be pushed through the upper eyelid at the predetermined preferred site. The conjunctiva in contact with the trochar point will in effect be drawn forwards.

**Note:**

- i) The introducer must be held firmly to avoid rotation.
- ii) This method means that the lavage system 'plate' will be located high in the conjunctival fornix and will be directed backwards away from the possibility of corneal contact.



**Figure 8:**

Whilst ensuring suitable protection for the eye (and avoidance of any eye contact or pressure), the introducer is pushed forward until the point can be grasped. At this point it is very important that the eye is protected and that no contact is made between the eye and introducer as it is pulled through the upper lid. The bent introducer assists in this process.



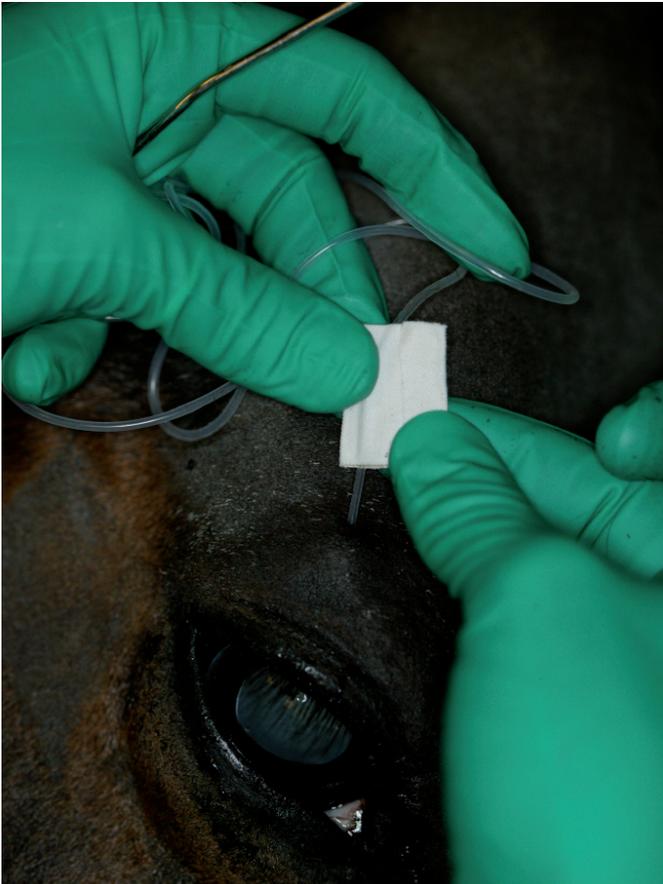
**Figure 9:**

The introducer is pulled through the lid and this brings with it the attached lavage system tube.



**Figure 10:**

The tube is drawn smoothly through the lid until the flange is close to the eye and then the lid is gently lifted to allow it to slide smoothly into the conjunctival fornix.



**Figure 11:**

The tube is held gently while a plaster 'butterfly' is fashioned and glued or sutured to the skin so that the palpebral portion of the tube is comfortable. Further butterflies are used to carry the tube away from the eyelid towards the forelock.

**Note:**

- i) A small bleb of methacrylate glue can be placed at the site of the exit of the tube but this can mean that the tube becomes brittle.



**Figure 12:**

The tube is lead away and passed through plaited loops of the forelock and mane so that the end is situated at the withers.



**Figure 13:**

The supplied purpose-made hollow connector is inserted into the open end of the tube and the injection port fitted firmly to this.



**Figure 14:**

Cut the closed end off a needle canister and pass the tube through the canister from the cut end. This is fastened firmly to the catheter that will be introduced into the end of the lavage tubing. When this is done the most fragile component of any lavage system (the join between the injection catheter and the lavage tubing) will be very well protected.



**Figure 15:**

Flushing the catheter with 5 – 10 ml saline tests the patency of the system and a free flow of saline from the conjunctival sac can be appreciated readily. It is now ready for use. Volume constant delivery systems such as reservoir balloons or infusion injectors can be fitted to the injection port in a standard way.



**Figure 16:**

The lavage system can also be located in the medial lower fornix outside the membrane nictitans where the dorsal position is not convenient or when there are factors that preclude its use (e.g. upper eyelid pathology). It is well tolerated here and it is of course very safe. However insertion is slightly more difficult being downwards and forwards.



#### **EQUIVET Ocular Lavage 5 Fr Kit**

##### **Components:**

Silicon Lavage Catheter 5 Fr with 0,76 mm I.D. and 1,7 mm O.D., 90 cm long

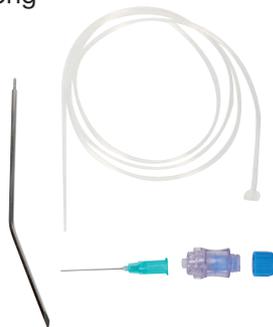
Trocar for 5 Fr

Needle 21G x 1" blunt

Needleless Injection

Site with protection cap

Cat. no. 230700



#### **EQUIVET Ocular Lavage 8 Fr Kit**

##### **Components:**

Silicon Lavage Catheter 8 Fr with 1,5 mm I.D. and 2,5 mm O.D., 90 cm long

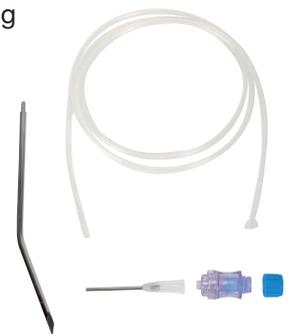
Trocar for 8 Fr

Needle 16G x 1" blunt

Needleless Injection

Site with protection cap

Cat. no. 230705



**EQUIVET**