

## Corneal Ulcers

Corneal ulcers are a very common ocular problem in the horse usually resulting from trauma to the eye. The cornea (the clear front part of the eye which covers the iris and the pupil) is approximately 1-1.5 mm thick in the center and 0.8 mm thick around the edges and is made up of three layers; the epithelium, the stroma (composed of collagen), and Descemet's membrane (inner endothelial layer). Trauma to the cornea can result in disruption of all or some of the layers. An intact corneal epithelium prevents infection from entering the eye. The tear film is constantly removing debris from the surface of the eye. Once the epithelium is disrupted, infection by microorganisms can occur.

Clinical signs of corneal ulceration include squinting or holding the eye closed, rubbing, tearing, redness or swelling of the conjunctiva (the membrane that covers the white part of the eye and lines the inside of the eyelids), and cloudiness of the cornea. If your horse exhibits any of these signs, contact your veterinarian immediately. All corneal ulcers in the horse are considered an emergency. Corneal ulcers are diagnosed by staining the eye with a fluorescein stain to determine if the epithelial layer of the cornea has been damaged. A blue light is directed at the eye and any defects in the cornea will take up the stain and appear green. A culture of the affected area may also be performed in order to identify bacteria or fungi present in the ulcer. This information is helpful in choosing appropriate antimicrobial drugs to control the infection.

Corneal ulcers should always be treated aggressively regardless of the size or depth of the ulcer. Simple ulcers can be treated with antibiotic ointment (such as bacitracin-neomycin-polymyxin) and atropine which is used to dilate the pupil and decrease pain caused by ciliary body spasms. Never use a triple antibiotic with a steroid on a corneal ulcer! The steroid in the ointment will

prevent the ulcer from healing. Larger or deeper ulcers require more aggressive and more frequent treatment which may include multiple antibiotic and antifungal solutions. Serum from the horse's blood is often used to prevent the cornea from melting (the result of a deep seated infection) and to help stimulate corneal healing. Banamine is also an important component of the treatment protocol for corneal ulcers as it helps reduce pain and inflammation in the eye.

If ointments are used to treat a corneal ulcer, they should be administered 30 minutes apart. The ointment can be applied to a clean finger and gently rubbed on the inside of the lower eyelid. Solutions should be administered 5 minutes apart and can either be squirted into the eye using a syringe or through a subpalpebral lavage system. A subpalpebral lavage system is placed in the upper or lower eyelid and consists of a thin piece of silicone tubing extending from the eyelid to the horse's withers along the mane. The lavage system allows for medications to be deposited directly onto the cornea without having to hold the horse's eye open. The subpalpebral lavage system can be in place for weeks while the corneal ulcer is healing.

Corneal ulcers are true emergencies. As in many cases, the sooner appropriate treatment is started the more likely a positive outcome is seen. Always contact your veterinarian immediately if you suspect your horse has had trauma to the cornea.

Contact Brandon Equine Medical Center at 813-643-7177 or email [info@brandonequine.com](mailto:info@brandonequine.com) with any questions regarding this topic.