

Equine Corneal Ulcers Dr. Chris Bell

Corneal ulcers are the leading cause for your horse to be seen by a veterinarian with an eye problem in Arizona. Corneal ulcers can affect any horse, of any age, and in any place. Frustratingly, the reason for ulcers occurring so frequently is unknown. Typically an ulcer results from trauma to the cornea. In Arizona, we see ulcers caused by cactus spines, dust particles, and eyelid hairs to name a few culprits.

The cornea is the transparent, thin layer of epithelial cells that covers the anterior chamber of the eye. It is composed of 4 layers; epithelium, stroma, Descemet's membrane, and endothelium. The epithelial layer is 10-15 cells thick and is replaced every 7 -10 days. In most instances, a corneal ulcer is initially caused by some form of trauma. Typically, a secondary infection begins shortly after the damage occurs and is caused by a bacteria or a fungus that is already present around the eye of the horse.

A corneal ulcer is defined as a break in the corneal epithelial layer. The typical signs you will see if this occurs in your horse are tearing (lacrimation), squinting due to pain (blepharospasm) and sensitivity to light (photophobia), inflamed and red conjunctiva, a blue hue to the eye (corneal edema) and a constricted pupil (miosis). Most horses will be reluctant to have you touch the eye or try to open the eye lids. They will prefer to stand in the shade and squint constantly.

There are multiple types of corneal ulcers. Simple corneal ulcers are the easiest to treat and if they are caught early, they respond very well to treatment with no long term effects to your horse's vision. Simple corneal ulcers are a small, thin break in the corneal epithelium. They usually remain uninfected, however; they can become infected with mildly pathogenic bacteria. Other basic types of corneal ulcers include; indolent ulcers where the rim of the ulcer does not heal properly and thus the ulcer persists allowing further damage to occur, complex (melting) corneal ulcers which are caused by bacteria (*Pseudomonas sp.*) that contain an enzyme called collagenase which degrades the corneal stroma, and mycotic (fungal) ulcers which also may be melting and are very difficult to treat.

To diagnose a corneal ulcers, your veterinarian will typically begin with a full ophthalmic exam including staining of the cornea with fluorescein dye (bright green stain). If there is damage to the cornea resulting in a break in the epithelium, the stroma of the cornea will become exposed. The underlying stroma will retain the fluorescein stain and appear green confirming the presence of an ulcer at that location.

Treatment of corneal ulcer involves controlling pain and inflammation, eliminating or preventing infection, and preventing secondary complications. The combination of medications typically used include; atropine (ointment or solution) which dilates the iris and helps relieve the pain and inflammation, BNP- Bacitracin, Neomycin, and Polymyxin B, (antibiotic ointment) which is a potent topical antibiotic for the eye, saline solution which helps relieve the corneal edema, and systemic NSAID such as bute or banamine.

Additional antibiotics and antifungals may be added to the regimen to head off secondary infections if they are suspected by your veterinarian.

It is important to note that if you suspect a corneal ulcer in your horse, you must never treat it with an antibiotic ointment or solution that contains corticosteroids such as dexamethasone or hydrocortisone. Steroids will worsen the corneal ulcer and effective treatment will be more difficult. There are many different ophthalmic antibiotic ointments and solutions available that have similar packaging. Always consult your veterinarian prior to beginning any treatment involving your horse's eyes. Contact your veterinarian as soon as you notice a suspected corneal ulcer. Early intervention is the key to successful treatment and recovery.