

Corneal Fungal Infections in Your Horse

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Fungal infection of the cornea in horses is an unfortunately common occurrence. It typically occurs following corneal trauma, for which horses are predisposed to due to the large size of their eyes, their environments and behavior. The trauma causes a break in the outer layer of the cornea (i.e. epithelium), which allows the normal ocular microflora, including fungal organisms, to invade the underlying corneal stroma and become pathogenic. Loss of the corneal epithelium is termed ulceration. Fungal organisms initially colonize the area of exposed stroma and incite secondary inflammation inside the eye (i.e. uveitis). Subsequently, the organisms can burrow into the deep corneal stroma, resulting in a stromal abscess or loss of stroma with risk of corneal rupture.

Clinical findings

Horses with fungal keratitis are often painful. They will squint, blink, and tear excessively. Eyelid swelling can also occur. Fungal keratitis should always be suspected in any ulcer that does not heal within 2-3 days. The appearance of fungal ulcers ranges widely from small superficial ulcers, to punctate lesions, to deep abscessation. Fungal keratitis in horses also commonly appears as a white or yellow plaque on the cornea. A furrow that develops around the plaque is associated with a poorer prognosis.

Diagnosis

Cytology, obtained by scraping the area of ulceration, is the quickest way to diagnose the disease but does not always confirm the presence of the organisms. Culture can also be performed but usually takes 2 weeks to get the results. Therapy for fungal infection needs to be started long before this. Mixed fungal and bacterial infections are seen in about a third of the cases.

Treatment

If cytology is positive for the organism or is negative, but the suspicion is high based on clinical signs, medical therapy should be instituted as soon as possible. Medical therapy for fungal keratitis is directed against fungal hyphae as well as the uveitis the infection incites. The effectiveness of topical and oral antifungal agents is dependent upon their spectrum of activity as well as their ability to penetrate the cornea and achieve sufficient ocular concentrations. The commonly used drugs are miconazole, itraconazole, fluconazole, and natamycin. Only natamycin is available commercially as an ophthalmic preparation. Fluconazole is only used orally and the other drugs must be compounded by a special pharmacy for use on the eye.

Voriconazole is a new antifungal derived from fluconazole. It has a broader spectrum of activity and better ability to control fungal growth than the azoles used currently. Topical voriconazole has been shown to effectively penetrate through the cornea into the anterior chamber of the eye in horses, and may provide an improved therapeutic option for equine corneal fungal infections.

Topical broad-spectrum antibiotic treatment (neomycin-polymyxin-gramicidin or ciprofloxacin) is indicated in cases of fungal infection to prevent or treat secondary bacterial infection. The intraocular inflammation must be aggressively treated and controlled. Atropine sulfate 1% is used to dilate the pupil (minimize iris-lens adhesions) and diminish pain. Banamine should also be administered for its anti-inflammatory effects to provide pain relief and control uveitis.

Surgical therapy

Combined medical and surgical therapy is indicated if ulcers are deeper than one-half of the corneal thickness, not responding to medical treatment, a furrow develops, or the infection worsens despite appropriate medical

therapy, generally after a week or so of treatment. Surgical options include a keratectomy with a conjunctival graft, or a full thickness corneal graft. Therapy is usually prolonged and scarring of the cornea may be prominent. While surgical treatment may leave a larger scar than medical treatment alone, it is definitely warranted for preservation of the eye and vision. Horses need to continue to be treated medically following surgery.

Any horse with a painful eye should be evaluated immediately by your veterinarian. Fungal keratitis should be a concern and aggressively managed in any ulcer or corneal disease that does not respond to appropriate therapy in a few days.

Contact Brandon Equine Medical Center at 813-643-7177 or email info@brandonequine.com with any questions regarding this topic.

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