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Equine Ocular Diseases

Horse's eyes are perhaps the most sensitive and one of the most important parts of their bodies. Horses have an incredible field of vision and can see around themselves almost 300 degrees. They have a limited depth of vision directly in front and almost no vision directly behind their bodies. This is because in the wild horses are a prey species, and they rely upon an excellent panoramic field of vision to survive. It is part of what makes them 'flighty' when out are riding, as they pick up upon minute changes in the environment that humans may not notice. Horses are very reliant upon their vision, especially when out riding and competing. Thus when dealing with ocular injuries and diseases in horses it is truly a case of 'a stitch in time saves nine', as it is far better to treat eye diseases quickly and effectively rather than delay treatment. There are many causes of eye disease in horses, so in this article we will touch upon the most common that you may encounter.

Trauma (wounds) - Many but not all diseases of horses eyes are initiated by trauma. Trauma may result in damage to the eye surface itself (corneal ulcer) or to the deeper parts of the eye (uveitis). Other times you may see a wound on or around the eyelids or a foreign object such as a stick lodged in the eye or eye socket. If you see a wound on or near the eye or eyelids it is important to obtain veterinary advice as soon as possible. This is in order to prevent and treat infection and inflammation and to prevent a simple wound becoming a much bigger problem. Any wounds involving the margin of the eyelid (where the normal edge of the eyelid is disturbed and a flap of skin is hanging) **MUST** be stitched in order to prevent an uneven eyelid and problems with the normal function of the eyelids down the track. If you see a stick or foreign object in your horses eye do not remove it, simply keep your horse quiet and as calm as possible and call a veterinarian immediately.



Figure 1. Wound to the lower eyelid

Corneal ulcers - The cornea is the outer clear layer of the eye and is the barrier between the eye and the outside world. This means the cornea is very important for preventing infection of the eye, and for holding all the fluid (aqueous and vitreal humor) within the eye. Any trauma to the eye such as from a poke or a scratch may result in the outer layer of the cornea (the epithelium) being peeled away. This is a corneal ulcer. This condition usually results in a cloudy white area on the eye and a very sore, squinty eye, sometimes with discharge. An ulcer is diagnosed by applying an orange stain to the eye called fluorescein. This stain turns green when it mixes with the tear film. Fluorescein will not bind to a normal cornea, however it will stick to an ulcer and appear as a bright green spot or line. Another cause of corneal ulcers are grass seeds lodged in the eye under the eyelids or under the third eyelid (in the corner of the eye). This



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is more common in summer. It is important to check under the eyelids and behind the third eyelid in every case of a corneal ulcer. This is usually performed under local anaesthetic and some horses require sedation as well. Corneal ulcers require treatment with topical antibiotics applied onto the eye, as well as anti-inflammatory drugs such as flunixin or phenylbutazone given by injection or by mouth. Atropine is applied to the eye to prevent secondary uveitis (see later). It is important to NEVER apply any ointment containing cortisone to a horse's eye before having the eye checked to see whether an ulcer is present, as cortisone will make an ulcer deteriorate rapidly and this can be vision threatening.



Figure 2. Corneal ulcer with fluorescein stain.

Descemetocoeles - These are a special category of corneal ulcer and are a very serious condition. The inner most layer of the cornea is the endothelium and above this is a membrane layer called descemets membrane. A descemetocoele is a cornea ulcer where the corneal layers have all been removed down to descemets membrane. This looks like a black hole in your horse's cornea. Any eye with this condition is at immediate risk of rupturing. This means the cornea could perforate and all the internal fluid contents of the eye could come out. Descemetocoeles do not stain with fluorescein because there is almost no tissue left in that spot. Furthermore these eyes often look less painful than eyes with shallow ulcers because all the nerves in that location are gone. There is less than 1mm left between your horse's ocular contents and the outside world! Protect the eye by keeping the horse quiet and call a veterinarian immediately. The vet may need to perform some surgery in order to protect the eye and treat the deep ulcer and you may need to take your horse to see an ophthalmologist (eye specialist) to save the vision in the eye.

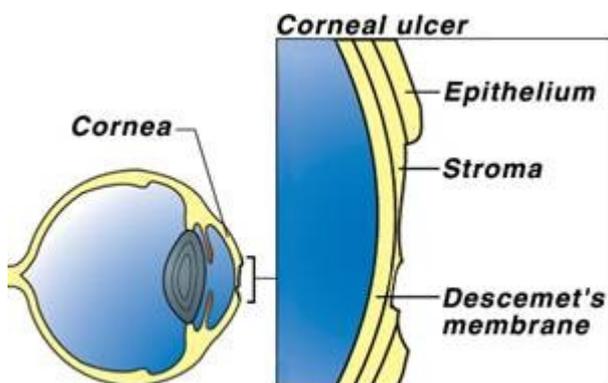


Figure 3. Diagram of corneal layers



Figure 4. Descemetocoele



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Stromal abscess - A stromal abscess forms when the cornea is scratched and bacteria or fungi enter the corneal layers. When the epithelium grows across the area the bacteria or fungi have entered a stromal abscess can form, as these organisms are trapped in the cornea. The abscess forms as a bright yellow/white spot in the cornea or a cloudiness in the eye. The abscess will usually not stain with fluorescein. The eye will look painful and often secondary uveitis (see later) can form which can be vision threatening. The vet will usually take samples from the abscess to test and the horse will need to be started on antibiotic eye drops and anti-inflammatory medications.



Figure 5. Stromal abscess

Ocular neoplasia - Horses can get several types of benign and malignant tumours forming around the eyes. Sarcoids are a type of skin tumour that can be very difficult to treat. Whilst they are not considered malignant, they may spread to other areas of the skin. Sarcoids can also be locally aggressive and invade the space around the eye.

Squamous Cell Carcinomas are a type of malignant (cancerous) tumour that is more common in non-pigmented areas, such as around the eye of paint horses and appaloosas. These tumours often look like ulcers and can look initially like the horse just has a wound to the area. They are thought to be induced by exposure to UV light (sunlight) so using a mesh fly mask in summer with UV protection will help prevent these growths.



Figure 6. Squamous cell carcinoma on the third eyelid



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Melanomas are usually black pigmented growths and are most common in aging grey horses. They are usually benign (non cancerous) but can also be malignant. All forms of ocular neoplasia (tumours) should be diagnosed via a biopsy and then treated appropriately with either surgery or local chemotherapy into the tumour, or a combination of both.

Uveitis - Uveitis is a condition where inflammation occurs in the middle part of the eye, the uvea. This is a region of the eye that controls pupil size and also controls the fluid formation in the front part of the eye (anterior chamber). Uveitis can either be secondary to any disease or trauma to the eye, or it can occur without an obvious underlying cause, especially in appaloosa horses. This is often a recurring problem and is called Equine Recurrent Uveitis. Uveitis causes the eye to look painful and red, often with a cloudy cornea and very small pupil. There may be hypopyon ("pus") forming in the anterior chamber (front part of the eye). Uveitis is very serious and can cause glaucoma and cataract formation, ultimately if not treated will lead to vision loss.



Figure 7. Eye with miotic (small pupil) and hypopyon

Parasites - A parasite known as Habronema (stomach worm) is transmitted by stable flies. Stable flies can lay the larvae of this parasite into the conjunctival sac around the horses eye. When this occurs there is an inflammatory reaction to the deposited larvae and this can result in a yellow-red protruding lump forming from the eyelids. The eye is often very itchy when this occurs. Ensuring your horse is wormed with a 'mectin' based wormer is important in preventing this condition.

Congenital Night Blindness - This is a genetic condition in appaloosa horses that causes blindness in dark conditions. It may also cause the eyeballs to deviate away from the normal position (strabismus). There is no treatment for this condition, however it does not usually progress or get worse with time. Management involves ensuring the horse is not in unfamiliar situations in dark conditions.

All eye complaints in horses have the potential to cause serious inflammation and this may lead to blindness. This means that any eye that doesn't look normal should be seen by an equine vet as soon as possible!

For further information or to book a vet visit, please call (03) 9739 5244.