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In the first paper Clark discussed, researchers looked at 22 cases of keratomycosis (fungal infection of the cornea, the transparent outer coat of the eye) presented to the University of Florida Veterinary Medical Center from 2001 to 2013. In a healthy eye, fungus shouldn't be present on a corneal scraping embedded within the cornea. But when they evaluated scrapings from horses with keratomycosis, researchers saw fungal hyphae in 100% of the samples when viewed under the microscope; when they cultured the samples, only 60% grew fungi, indicating that corneal cytology was more sensitive than culture in diagnosing the condition, Clark said.

Further, the veterinarians treated 91% of the horses with at least one antifungal and an antibiotic ophthalmic medication. They also treated all the horses for secondary uveitis (inflammation of pupillary tissues), which often occurs secondary to corneal inflammation. Additionally, 91% of the horses underwent a keratectomy (trimming away the plaque where the corneal tissue was undermined). This surgical approach promoted blood vessel migration into the defect and epithelial cell growth to repair damaged corneal tissue. A small corneal scar remained in many cases. Treatment took, on average, 6 ½ weeks, and it took eight weeks for 73% of the cases to regain vision. Clark said this study's take-home message is that cytology (examination of a cellular swab) is important for making accurate diagnoses of eye infections in order to implement appropriate treatment.

The next paper Clark reviewed concerned a newly recognized ocular inflammatory disease called heterochromic iridocyclitis—which at its very simplest means the iris loses its pigment and becomes inflamed, along with the ciliary body (which produces transparent liquid in the eye)—with secondary keratitis (corneal inflammation). In the retrospective study researchers examined 21 affected eyes in 16 horses. All the horses had pigmented kerato-precipitates (pigment dispersion from the iris on the corneal epithelium, or lining). Initially, many affected horses present with corneal edema (fluid swelling) but no pain, at it appears as if they have glaucoma. This is a progressive disease and, in 24% of cases, a fibrous membrane develops behind the cornea that can impair a horse's vision. Researchers believe that an immune-mediated uveitis attacks the iris' melanin pigment, causing the pigment dispersion and secondary dysfunction of corneal endothelial cells (the single layer of cells on the inner surface of the cornea). About 50% of the horses had retained vision on short-term follow-up after treatment. The researchers reported that the best treatment was a combination of immunosuppressive cyclosporine implants placed beneath the conjunctiva and a topical non-steroidal anti-inflammatory drug (NSAID). Clark reported that treatment is long-term and likely will not have a good outcome because these cases don't seem to go into remission.

On the topic of breed-associated ocular problems, Clark discussed various genetic possibilities:

- Haflinger horses tend to develop limbal (on the border of the cornea and the white of the eye) squamous cell carcinoma earlier than horses of other breeds – 8-9 years of age as compared to 12-13 years of age. This eye lesion appears to have an autosomal recessive mode of inheritance, which means a horse must inherit two copies of the abnormal gene for the mutation to occur. Bilateral corneal stromal (the thickest middle layer of the cornea) loss in Friesians might occur along with other collagen diseases in this breed. Initially, the problem is obvious in one eye although it does involve both eyes. Half the cases go on to perforate, but if treated surgically they have a good outcome. The average onset is 11 years of age. In light of the fact that most of the patients are males, researchers suspect a chromosome X-linked inheritance pattern.

Hereditary equine regional dermal asthenia (also known as HERDA) in Quarter Horses is accompanied by collagen dysfunction that leads to a thinner cornea and increased corneal curvature and diameter. These characteristics compromise distance vision by making affected horses nearsighted.

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