Management of Blindness in Horses

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Take Home Message

Blindness is a common end result of equine uveitis. Today, many horses that go blind are not euthanized, but are kept as pets, companions, and occasionally as riding horses. Practitioners must know how to counsel owners of horses who are blind or have a poor visual prognosis. This paper presents basic facts about blind horse behavior and adaptation to vision loss. Tips on enucleation of painful blind eyes are included. Resources that will be helpful for horse owners are listed.

Causes of Blindness in Horses

Uveitis is the leading cause of blindness in horses. Some horses suffering from uveitis have recurrent episodes of acute inflammation interspersed with quiet periods; others (mainly Appaloosas and draft horses) have slow degeneration of the ocular structures due to insidious but persistent disease. At least 50% of equine eyes that are affected with uveitis have been observed by the author to eventually lose vision, despite intense treatment of acute episodes and careful management of insidious cases. The actual cause of vision loss in uveitic horses varies: some horses develop dense cataracts, some go blind from the consequences of secondary glaucoma, some horses develop detached retinas and others go on to suffer degeneration of the ciliary body and become phthisical.

Many other diseases cause blindness. Severely infected or melting corneal ulcers may fail to respond to therapy and progress to the point where enucleation is necessary. Penetrating injuries can occur that cause internal scarring or globe rupture. Neoplasia can occur on the globe, adnexa or in the orbit, necessitating enucleation. Severe head injuries can cause intracranial damage that result in cortical blindness. Occasionally horses are born blind with congenital conditions like microphthalmos. No statistics have been compiled to document the incidence of blindness in horses worldwide but it is significant. Unilateral blindness is quite common, affecting perhaps as many as 1-2% of the general population. Bilateral blindness is less common but still affects a large group of horses.

Recent changes in attitudes on animal welfare have changed the management of many blind horses. In the past, most bilateral blind horses were subject to euthanasia either at slaughterhouses or at home farms. Now, many people choose to maintain blind horses as pets and companions. Some blind horses are ridden and a few compete in athletic events like dressage or reining.

Adaptation to Acquired Blindness
Most horses lose vision gradually. As acuity decreases, handlers may notice progressive uncertainty, especially in low light situations. Herd behavior may change. Riders may report frequent shying or balking. Certain low light conditions may be accompanied by instances where the horse is observed bumping into obstacles.

When complete blindness occurs, some horses go through a period of fear or anxiety. Handlers may report episodes of rapid circling, freezing in place, prolonged neighing and spooking. A previously tractable horse may become dangerous to be around if it crashes into a wall or runs over a handler. The horse may initially be observed to show a head tilt or walk slightly off balance. Other individuals show a calmer acceptance of blindness but are still at risk for injuring themselves or others if they run into something.

Horses with reasonable temperaments adjust to blindness after an adaption period of several weeks. Horses who are good candidates for adjusting to blindness are those with calm, easy going temperaments and dedicated owners who are willing to make environmental and management changes that accommodate the disability. Owners of horses with vision loss should always allow the horse a “transition period” of several days to weeks to adjust to blindness before judging what the long term temperament will be.

Some horses with high strung, nervous temperaments never adjust well to vision loss and pose a constant risk of injury to themselves or their handlers. Horses that are have nervous temperaments and are owned by owners who are not dedicated to their long term management may need to be euthanized.

**Social Interactions with Other Horses**

Some horses benefit from the presence of a calm, sighted companion in their paddock or barn in the period where they are adjusting to blindness. Others fare better if they are kept alone.

Once the adjustment to blindness has been made, most blind horses enjoy the company of one gentle, compatible companion. This can be another horse, a pony, or a goat. The bond that develops between the “pasture buddies” may become extremely close. The sighted horse may serve as a “seeing eye” for the blind one. Sometimes the sighted animal may even be observed to “lead” the blind horse around obstacles. Handlers should be aware that the bond between these pasture companions will be exceptionally strong. If one horse has to be separated from the other, both may display extreme anxiety. However, blind horses that lose their “pasture buddy” will generally adjust quickly to a replacement companion.

Blind horses generally do not fare well in herds. Herd interactions generally revolve around a social hierarchy and a blind horse will move to the bottom of the pecking order. Blind horses in herds are typically pushed around, treated as outcasts and not allowed choice access to food, so they generally fail to thrive.

**Environmental Considerations**
Blind horses seem to have the ability to construct a “mental map” of their environment and show remarkable ability to sense the perimeters and pathways of their usual enclosures. Still, common sense dictates that their surroundings be made as safe as possible. Fencing should be a particular concern. Board fencing (wood or plastic), woven wire or mesh-wire diamond weave fencing are good choices. Barbed wire should be avoided. The pasture should be free of holes, debris, equipment and sharp objects. Trees or poles in the pasture should be fenced off or ringed with materials like sand filled tires. Low hanging branches or sharp elements on pasture vegetation pose a particular risk, and should be trimmed or cut down.

Some managers like to install environmental “cues” for their blind horses. Examples include a skirt of stone footing around pasture gates, and rubber mats in the pasture in the area where hay is fed. It is important not to “rearrange the furniture”— once the environment is established it should be kept constant. Hay and water stations should be established and kept constant.

Stalls should have solid walls and secure doors without sharp hardware projections. All “J” shaped handles on buckets or feed tubs should be taped up to prevent eyelid lacerations. Windows should have safe casings and glass should be protected by wire mesh or another barrier. Signage should be posted stating that the stall occupant is blind to warn visitors that special handling of the horse is in order.

The remaining senses seem to be enhanced in blind horses. They appear to have acute hearing and a keen sense of smell. Their sense of touch is a key guide. The most richly innervated region of the face is the muzzle, and blind horses can be observed “reading” their environment with their muzzle much the same way a blind person uses their fingers to read Braille. The whiskers and facial hair of a blind horse should never be clipped as these hairs provide further sensory feedback and help the horse “map” its environment.

Training Blind Horses

Blind horses recognize their handlers by voice, smell and touch. Handlers should use their voice often both in the transition period of adjustment and also once the horse has accepted blindness. A consistent set of voice signals will help reassure the horse and key it to certain obstacles like steps or trailer ramps.

Verbal cues for “whoa” should be taught early and should always be delivered in the same tone of voice. Similarly, cues for “walk” and “trot” can be taught while the horse is led. Other cues should be set to alert the horse to obstructions in their path. When leading horses towards obstacles, orientation may be improved if the handler raps on the obstacle loudly so the horse can gauge how far away it is. A voice cue of “Ahh….step” will be learned as a warning of an upcoming incline to be negotiated. Trailer loading and off loading will be expedited if a specific set of cues are developed to help the horse navigate the ramp or step into the trailer. The handler should always speak to the horse when approaching it in a field or stall.

Touch is an important training cue in addition to voice. A consistent approach when greeting the horse (say always approaching one shoulder, while speaking to the horse in a consistent voice) is
a good idea. Horses that are anxious will usually settle down with a reassuring touch coupled with a steady verbal cue from a familiar handler.

Habit and routine are important for all horses and are especially vital for blind horses. They will quickly learn the barn routines and anticipate where to go for feeding, turnout, etc, each day.

Blind horses respond well to natural horsemanship exercises on the ground. They can be taught all sorts of commands and reactions. Time spent with this kind of work will cement the bond of trust a blind horse has with its regular handler, and be mutually enjoyable for both the horse and the handler.

Unilateral Loss of Sight

Most of this article has addressed horses that are totally blind. However, many horses lose sight in just one eye for a variety of reasons cited above. Horses that are unilaterally blind generally adapt very well and also perform well in a variety of disciplines. Horses that are sighted in one eye are permitted to race, compete in endurance events and show in a variety of disciplines. Exceptions are the sport of polo, which does not allow unilateral blind horses to be used in matches and the hunter discipline, which also does not allow partially blind horses to show. Unilateral blind horses are acceptable in collegiate polo, so these strings often inherit horses from professional strings that have lost vision in one eye.

Personnel that work around horses that are unilaterally blind should be aware of the condition. Veterinarians who have to perform injections or other noxious procedures on unilateral blind horses are well advised to choose the sighted side for injection. It is best to approach a half blind horse always on the sighted side.

Enucleation Decisions and Options

Most horses that become blind still have their globes when vision is lost. In some cases (dense cataract, some cases of detached retina or cortical blindness) the globe remains a normal size and orientation. In other cases the globe becomes altered in size or orientation. Some blind eyes become chronically enlarged from glaucoma. Others, especially eyes afflicted with uveitis, shrink from destruction of the ciliary body and internal scarring to become phthisical. Some blind eyes show chronic strabismus with the globe usually being deviated in a ventral or nasal direction.

Blind eyes are at increased risk for trauma from the environment. It is common to diagnose corneal ulcers in blind eyes, but the ulcers may go undetected and untreated by the owner as the appearance of the globe was abnormal to begin with. Phthisical eyes often show chronic inflammation of the globe remnant, conjunctiva and nictitans. Blind eyes with glaucoma appear comfortable in some horses, but other horses appear to suffer chronic low to moderate levels of pain.

Horses that are blind and suffering chronic pain benefit from enucleation of the affected eye(s). Enucleation of a chronically painful blind eye is a humane choice that benefits the overall
welfare of the horse. Enucleation is a procedure that is relatively simple to perform and low risk in terms of post operative complications. Many horses show an immediate improvement in temperament and demeanor after surgery, suggesting that the chronic ocular pain was affecting their quality of life. Recovery from enucleation is usually very fast and post operative care is minimal.

Enucleation is a surgery that can be done under general anesthesia in 45-60 minutes. Recently, many clinics have been performing standing enucleations on horses in similar time spans. Standing enucleation has been performed by the author on a number of horses with excellent results. Standing enucleation is a viable choice for horses who are anesthetic risks, i.e. horses who are very old, very large (draft breeds), very small (miniatures or small ponies) or suffering from diseases like Cushings disease or laminitis.

The author performs standing enucleation in stocks. A large “bale table” is created in the front of the stocks to provide a surface for resting the mandible. The table built to be “two bales wide” and 3-5 bales high depending on the height of the horse. The extra width is used to support a padded, wedge shaped head rest for the contralateral side of the face. The resultant stability of the ventral mandibular rest balanced by the padded support for the opposite eye gives a stable operating field for the surgeon that is also very comfortable for the patient.

An intravenous catheter is placed in the patient for easy venous access for sedation. The author has had good results using a combination of small doses of detomidine and butorphanol occasionally supplemented with small doses of xylazine for the procedure. The periorbital region is clipped and prepped in the sedated animal, taking care to prep the above the eye for the retrobulbar block. The eye is draped with cloth drapes that are secured by wrapping them around the halter and clamping them with towel clamps.

Pain free surgery is dependent on thorough regional anesthesia. This is achieved by a retrobulbar block in combination with infiltration of anesthesia over the auriculopalpebral and supraorbital nerves, and an oval shaped infiltration of the skin surrounding the eyelids with local anesthesia. The retrobulbar block is performed by injecting 10-12 ml of mepivicaine or lidocaine through a 3 inch spinal needle directly into the orbital cone. The needle is inserted in the supraorbital fossa just behind the rostral bony rim in a ventral direction. Successful infiltration of the orbit is accompanied by a slight protrusion of the globe as the infiltration is completed.

The enucleation procedure is performed using the well described transpalpebral technique. The author prefers having two assistants. One person is assigned to horse restraint and supplemental dosing of sedation through the jugular catheter. The other person is scrubbed to assist with the surgical procedure.

Once the surgery is complete, a sterile 6 inch stent gauze bandage is sewn over the closed skin incision and the operated eye is bandaged with an elasticon wrap that applies pressure to the site. Post operative care usually involves oral administration of non steroidal anti-inflammatory medication for 3-5 days, removal of the elasticon bandage and stent on day 3 and removal of the sutures on day 10-12. Horses can be discharged on the same day of surgery if no complications
arise. The author has performed this procedure bilaterally on a few patients but only operates one eye at a session.

Silicone ocular prosthetics are available commercially as space occupying devices that can be placed in the orbit. This author does not advocate their use, as the complication rate with implants is significant (reported rate of complications has been as high as 20%). The end cosmetic result after prosthetic insertion may not be significantly better than the appearance of an enucleated orbit without a prosthetic.

References and Footnotes


a. Dwyer, A. Personal observation.
b. Smith, S. Personal communication.

Resources

*Internet resources for owners of blind horses*

[www.rollingdogranch.org](http://www.rollingdogranch.org)
Rolling Dog Ranch Animal Sanctuary is a home for disabled animals in New Hampshire. Over 30 blind horses are maintained at the ranch. The owners, Steve Smith and Alayne Marker, publish both an online and a print newsletter about issues of concern for disabled animals. They have a special interest in blind horses.

[www.blindhorses.org](http://www.blindhorses.org)
Informative site about blind horses created by the owners of the Rolling Dog Ranch. Great outline format with lots of anatomic detail, tips on managing blind horses, extensive references, links to other useful sites

[www.flurryshope.com](http://www.flurryshope.com)
Website of a sanctuary in Madison, North Carolina for blind horses

[www.valianttrust.org](http://www.valianttrust.org)
Website about Valiant, a horse that went blind when he was young and went on to become a dressage horse, competing at 4th level.

www.blindhorsecare.org
Website created by Susan Straumann detailing information about caring for, training and riding blind horses. Many useful pictures detailing training tips

Blog about blind horses that has several videos of blind horses being ridden.

Printed Resources for owners of blind horses

Dwyer, A. “Practical Management of Blind Horses”. In Gilger, B (ed) Equine Ophthalmology, 2nd ed, Elsevier, 2010. (the chapter can be accessed online through the following link: www.blindhorses.org/resources_pract_management.html)

Hillenbrand, L. “Leading the Blind”. Equus 1996; 229:70-80. (the article can be accessed online through the following link: www.blindhorses.org/resources_leading_the_blind.html)

Levin, C. Living with Blind Dogs. Lantern Publications, 2003. (Although written for dog owners, this book provides valuable advice for anyone dealing with a blind animal and can be ordered on line: www.petcarebooks.com/books/living_blind.htm)