

'Moon blindness' - The scourge of the equine eye

Introduction:

'Moon blindness' is a colloquial term for *equine recurrent uveitis (ERU)* which is also synonymous with periodic ophthalmia and iridocyclitis. ERU is the most common cause of blindness in USA. Exact figures are not available for the UK, however, it is a common cause of eye problem in the author's population of patients. Appaloosa horses and related breeds seem to suffer from this disease more commonly than other horses in both eyes. Generally colour dilute breeds (pale eye horses) seems to be more likely to suffer from ERU. A genetic predilection has been found in German Warmbloods.

What is it?

Uveitis simply is just inflammation of the eye. Uveitis can either be primary and happen from a one off trigger such as trauma, or it can be recurrent and is characterised by more than one episode of uveitis called ERU. It is important to draw the distinction between these two categories of uveitis as the consequences and treatment may differ. ERU can either present with multiple distinct episodes of uveitis which is usually evident as painful eye episodes that require veterinary treatment, or the ERU can be insidious and clinically silent, where the horse shows no painful outward signs of the inflammation but goes on to have the consequences of ERU (see later). Uveitis can be subdivided into anterior (front), posterior (back) or pan (all) of the eye but for the purposes of this article we do not need to differentiate.

Philip examining a donkey in The Gambia with ERU for the Gambia Horse and Donkey Trust.
www.gambiahorseanddonkey.org.uk



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Philip examining a partially sighted horse in Florida where ERU is very common while he was spending time at the University of Florida Ophthalmology department.

What Causes it?

What causes ERU remains an area of much debate within equine ophthalmology. ERU is probably an end-point for a number of initiators of eye inflammation. Anything that breaks the barrier between the eye and the body's immune system can potentially trigger uveitis such as viral, bacterial or parasitic infections or trauma. Once this immune system barrier is breached to the eye the horse's own body can start to attack molecules within the eye. ERU is an **immune-mediated disease**. In some parts of the world such as Germany and parts of north America an organism called Leptospirosis seems to be a common trigger. Leptospirosis has many different types and it is unclear whether we have the right types to cause ERU in the UK. It is this author's opinion that the majority of the cases he sees in the UK are NOT leptospirosis induced however looking for this infection is indicated in some cases.

What to look out for:

- Tearing—clear ocular discharge
- Eye pain—eye closed or squinting
- Rubbing of the eye
- Cloudy surface of eye—corneal oedema
- Constriction of the pupil—miosis
- Aversion to light—photophobia
- Redness of the conjunctiva

Eye problems move quicker than other ailments. Within minutes to hours eyes can deteriorate—if you notice a problem with your horse's eye please **SEEK** immediate veterinary advice.

What are the consequences?

Uncontrolled inflammation within the eye can cause damage to all levels of the eye: Working from front to the back of the eye the long-term consequences include:

- Cornea—corneal oedema, possible calcification. Corneal ulceration from rubbing due to pain—this can lead to corneal scarring
- Iris (pupil) - increases stickiness leading to attachment of the iris to the lens or cornea—this causes an irregular pupil or pigment to be left on the lens—see figure 3—synechiae formation
- Lens—Cataract formation which can eventually lead to blindness (figure 2). The lens can sometimes become dislodged—luxated.
- Vitreous humour—inflammatory debris (floaters) which interrupt light causing visual deficits or behavioural problems
- Retina—Retinal degeneration leading to retinal scarring—figure 1.
- Glaucoma - increased eye pressure

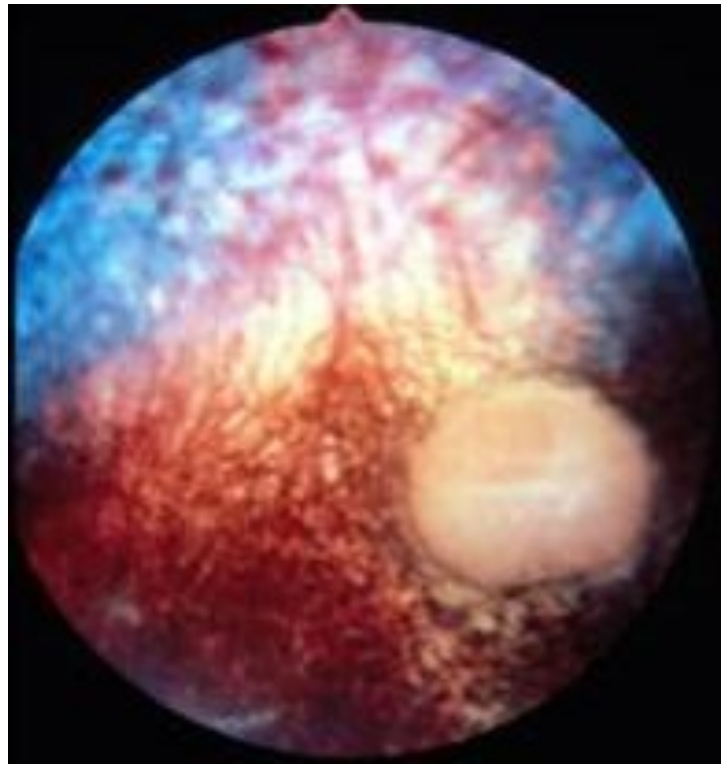


Figure 1: Scarring of the back of eye causing visual deficits—this is a diffuse chorioretinopathy



Figure 2: Mature cataract stopping light from passing to the back of the eye causing blindness in this eye.

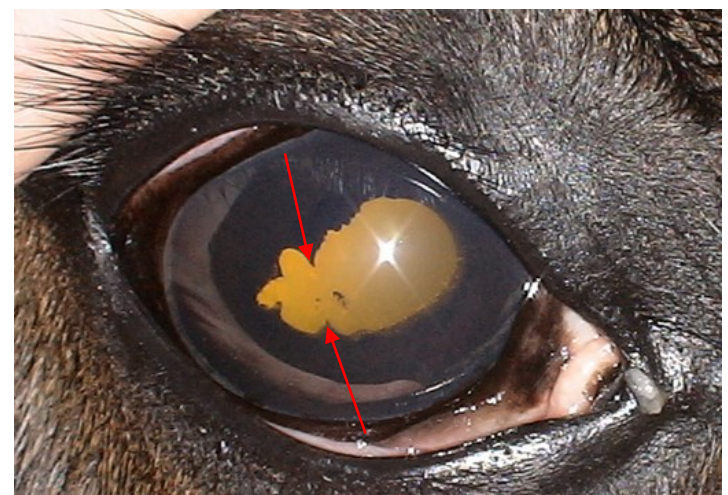


Figure 3: A six year old polo pony with an irregular pupil and attachments of the iris to the front of the lens (see red arrows)

What can you do?

- Early recognition of signs and calling your veterinary surgeon
- Wind and ultra-violet (UV) light (sunshine) do not cause ERU directly but are triggers and can trigger eye inflammation.
- Wearing a face mask with a high ultra-violet (UV) protection—sunglasses!
- Day-time stabling in horses with diagnosed ERU.

What can your vet do?

- Diagnose the problem from other eye conditions.
- The horse has a strong blink reflex and sedation and/or nerve blocks maybe required to examine the closed eye.
- Treat any secondary corneal ulceration with antibiotics drops, +/- serum +/- EDTA drops.
- Anti-inflammatories
 - Injectable/oral— eg ‘bute’ or flunixin (flunixin tends to be more potent for eye inflammation than bute)
 - Corticosteroids—usually in drops and only if no corneal ulceration is present. E.g. Maxitrol™, Pred Forte™ . Oral tablets/injections are available for the most severe cases.
- Dilate Pupil—to relieve the pain from the spasm of the ciliary muscle and to try to prevent adhesions occurring between the iris and other eye structures.
 - Atropine drops to effect. N.B. Small risk of colic—monitor faecal output.
 - Unresponsive cases—phenylephrine drops as well.

Are painful eyes always ERU?

NO

Accurate diagnosis is imperative by your veterinary surgeon. At their discretion sometimes specialist examination may be required by an equine ophthalmologist or equine internal medicine specialist. Specialist equipment such as slit-lamp, indirect ophthalmoscope, tonopen (measures eye pressure) and ocular ultrasound may be required. Listed below are some conditions that can look like ERU and need differentiating in a horse with a painful eye.

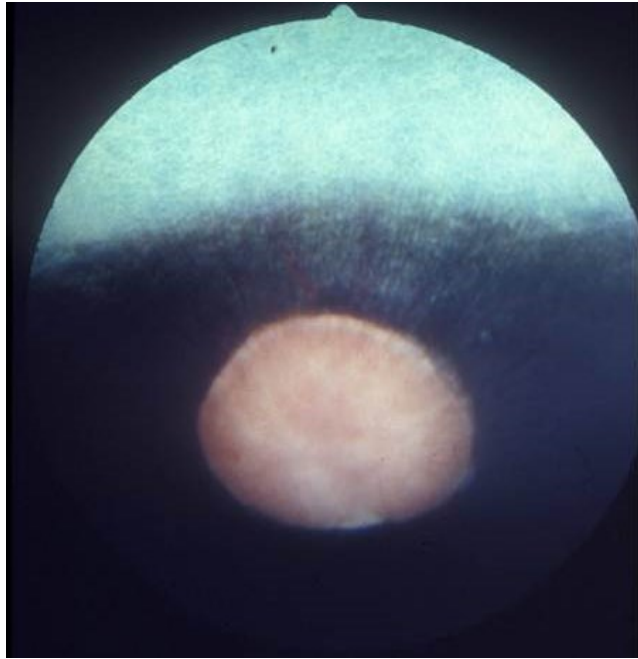
- Corneal—ulceration (sometimes with concurrent reactive uveitis), keratopathies, stromal abscess. NB corneal ulceration can happen secondary to ERU.
- Glaucoma
- Primary uveitis

Surgery:

For carefully selected cases new treatment options are now available by specialised ophthalmic surgeons. They are not without risks and careful analysis with your veterinary surgeon and specialist is required. The first surgery has been developed in USA and involves the implantation of an immune-suppressive device in the eye called a cyclosporine implant. There are a couple of ophthalmic centres in the UK which now offer this service. The second surgery involves removing the fluid in the back of the eye and replacing it—Pars plana *vitrectomy*. This is performed in Germany to the authors knowledge and is not performed in the UK due to the risk to the eye and the lower prevalence of leptospirosis.



A cyclosporin implant being placed under general anaesthesia by Professor of Ophthalmology at The Royal Veterinary College.



Normal Horse Retina: Blue/green tapetal segment and black non-tapetal segment. Compare to figure 1.