

## Blue Blindness- A Threat to Equines

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### Introduction

Blue Blindness, commonly known as equine recurrent uveitis, is an acute painful condition of the eyes of the horses. It was earlier known as moon blindness as it was thought that its occurrence is affected with the phases of the moon. The disease is a threat to equines as it is the most common cause of blindness affecting about 25% of equine population in the world. Horse breeds affected with blue blindness are Thoroughbreds, German Warm bloods, Icelandic horses, American paint horse and some draft breeds but the most commonly affected breed is Appaloosas. Appaloosas breed is eight times more susceptible than any other breed of horses. Various researches also have shown the genetic predisposition in this breed.

### Etiology

Moon blindness is an acute painful inflammation of the middle layer of uveal tract of the eye which may be unilateral or bilateral. The disease is recognized as a complex autoimmune disease having both genetic and environmental causes. Genetically, LP mutation is responsible for the occurrence of this disease. One form is Leptospirosis associated Equine recurrent uveitis which is caused by *Leptospira* species, affects various breed of horses, especially Appaloosas breed. However, the exact mechanism of *Leptospira* species causing this condition is not yet known. This condition is also more common in tropical area due to higher prevalence of *Leptospira* species in tropics than arid zones.

### Symptoms

The initial signs of disease are milder but over the time, it progresses into a painful inflammation along with redness, tearing, squinting and ocular discharge from one or both the eyes. Depending upon the severity, the disease has got three forms –

**(1) Classic form**–This form is common in Warm bloods and Icelandic horses and is characterized by acute outwardly painful inflammation of the eyes.

**(2) Insidious form**– It is characterized by low grade inflammation which is not outwardly painful but it progressively causes destruction of structures of the eye leading to progressive vision loss. This form is mostly encountered in Appaloosas breed and some draft breed of horses.

**(3) Posterior form**–This form is seen in German Warm bloods and draft breeds and is characterized by the inflammation of structures in the back of the eye like vitreous, choroid and retina.

If left untreated, the condition may lead to aqueous flare, chemosis, cataract, vitreal degeneration and progressive retinal atrophy.

### **Diagnosis**

Diagnosis in horses is quite clear-cut as the condition is acute and painful in nature. The history of recurrent and persistent inflammation in one or both the eyes should be recorded. Typical symptoms like redness, tearing and squinting should be noted. Animal should be examined for corneal edema, posterior synechia, corpora nigra atrophy, cataract, vitreous degeneration and retinal degeneration. Complete blood count, serum biochemical tests, fluorescein staining and various serological tests should be performed to rule out the presence of *Leptospira* species. LP genetic test can also be used to evaluate the risk of disease in equines.

### **Treatment**

The success rate of treatment depends upon the timing of initiation of treatment. The treatment should be initiated as early as possible. The goal of the treatment is to preserve vision, alleviate pain, and prevent or minimize the recurrence of episodes of uveitis. The pain and inflammation should be relieved by using corticosteroids (Prednisolone, Triamcinolone, Dexamethasone, etc.) and systemic medications i.e., NSAIDS (Ibuprofen, Flurbiprofen, Diclofenac, Bromfenac, etc). In severe case, corticosteroid injection along with gentamicin can be directly given into the eyes.

In severe case, surgery might be done in the infected animal. Two surgical techniques can be employed. First technique is suprachoroidal cyclosporine implant which is basically a sustained release implant providing therapeutic dosages of cyclosporine. The implant is implanted for three years to improve the eye condition and to reduce the recurrence. The second option is core vitrectomy in which the core of the vitreous is removed to remove fibrin, debris, and inflammatory cells and bacteria if trapped in vitreous humor. The fluid is then replaced with normal saline solution. This whole procedure requires general anaesthesia and can improve vision, minimize episodes and delay the progression of clinical signs. If the animal got blind, then enucleation or eye removal is practiced. Long term prognosis is guarded in the infected animal. Early diagnosis and treatment have good survival rate in the horses.

### **Prevention**

Genetic risk for Equine Recurrent Uveitishas been reported in Appaloosas (insidious Equine Recurrent Uveitis) and German Warm bloods (posterior Equine Recurrent Uveitis). Risk for Equine Recurrent Uveitis in Appaloosas can be evaluated using the LP genetic test. Early diagnosis and treatment may improve the prognosis in the horses. Along with this, public awareness is also required in the places where horse rearing is common.