

## Mini-Review

# Equine Piroplasmosis

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## Introduction

Equine Piroplasmosis (EP) is a tick-borne disease also referred to as babesiosis or theileriosis. This disease can affect horses, donkeys, mules, and zebras. Theileria equi and Babesia caballi are the causative parasitic agents of this disease which is spread by tick bites or through mechanical transmission by improperly disinfected instruments [1]. Considered endemic (native to an area) in many tropical regions including Africa, Europe, the Middle East, Asia, Central and South America, EP is a foreign animal disease in the United States is not endemic here. Approximately 14 species of ticks can be vectors for the organisms that cause this disease. Potential tick vectors for T. equi and B. caballi exist in the U. S.

## Transmission

Equine Piroplasmosis occurs naturally when ticks ingest blood from an infected horse and then bite an uninfected horse, thereby spreading the parasite through blood contact. The disease replicates in the tick, making spread of the disease to multiple horses likely. Currently, there is only one known area in the U.S., located in southeast Texas, where tick transmission of EP agents has been shown to occur [1]. Equine Piroplasmosis is also spread iatrogenically by humans using skin penetrating instruments without properly sanitizing these instruments or disposing of them between horses. These instruments include needles, syringes, dental equipment, tattoo equipment, and surgical tools [1]. The majority of recent outbreaks in the United States have been attributed to iatrogenic transmission rather than the natural transmission via ticks.

## Clinical Disease and Diagnosis

The blood borne parasites T. equi and B. caballi attach to the red blood cells and cause their destruction. After a horse is infected it can take from 7 to 30 days to show signs of the disease. Cases of EP may be inapparent, mild or acute. Mild cases can appear as loss of appetite or weakness, while more acute severe signs include fever, anemia, weight loss, jaundice, fluid accumulation in the abdomen, decreased performance, edema in the lower

limbs, and even death. Because EP is not endemic in the US, our horses are naïve and highly susceptible to the acute forms of the disease. Mild forms of the disease may go completely unnoticed by horse owners. After the initial stages of the disease, EP may become chronic. Horses can carry the parasites for long periods of time with no clinical signs. This leads to a horse becoming a carrier that can spread the disease to other horses by mechanical or natural routes.

Because the clinical signs of EP are similar to other diseases, it can be challenging to diagnose without appropriate testing. The accepted method to diagnose EP is to test the serum or blood for antibodies to T. equi and B. caballi. Testing can take several days and may need to be sent to a national laboratory for confirmation testing. Due to the foreign animal disease designation in the United States, positive samples require notification of state and federal regulatory officials. Additionally, international notice to the World Organization for Animal Health (OIE) is conducted. The OIE is the international organizations that establishes standards for the safe international trade of animals [2].

Today the United States enjoys the status of being free of EP from a travel and export perspective. The importance of protecting this designation cannot be understated when considering the negative economic impact we would incur if travel and trade were restricted as a result of allowing this disease to become endemic in our country.

## Prevention and Treatment

Current options for treating a positive horse are limited. These options include life-long quarantine overseen by federal regulatory officials, euthanasia, and treatment. Treatment of EP is only permissible if the horse is enrolled in a USDA supervised research program. The goal of treatment is to completely clear the horse of infection. Although identification of a treatment protocol that can provide permanent clearance of EP from an infected animal would be ideal, it is not an outcome that can be guaranteed. The positive antibody status of the horse remains for many months and, in some cases, up to 2 years after successful treatment and the

horse must remain quarantined during this time.

Prevention is vital to stop the spread of EP. In areas where the host tick is known to live, efforts to control ticks and keep them off horses have proven important. These ticks a 1 host ticks. They spend their life cycle on the same host as much as possible. In the United States, recent EP outbreaks have occurred in areas where the host tick is not known to live. These outbreaks have been isolated and caused by reusing needles and syringes between horses. The American Association of Equine Practitioners gives these guidelines: [1]

#### ALWAYS

- Use a new sterile needle and syringe for injections, whether into a vein or muscle or beneath the skin
- Clean and disinfect equine dental, tattoo and surgical equipment between horses
- Have any horse that will serve as a blood donor tested for EP
- Contact your veterinarian if your horse is sick and has signs of fever, reduced feed intake or lethargy

- Check with your State Animal Health Official if you need more specifics about EP.

## Conclusion

Equine Piroplasmosis can be a devastating disease to horse owners and the horse industry. Understanding this disease and how it is spread will help us keep our horses safe. With current outbreaks being limited to the race horse industry, the several state racing commissions have implemented a new rules requiring owners/trainers to provide a proof of a negative Theileriaequic ELISA test performed within the last twelve (12) months before allowing horses to enter the track. With these measures the racing industry hopes to help in the control of the current and potential threat EP poses to our horses.

## References

1. American Association of Equine Practitioners: Horse Health Equine Infections Anemia.
2. USDAAPHIS 2008, Fact Sheet – *Equine Infectious Anemia*.