

Equine Piroplasmosis

TICK-BORNE DISEASE

Piroplasmosis is considered a tick borne disease capable of affecting horses, mules, donkeys, and zebras. Although this disease is currently uncommonly seen in the United States, it is important to recognize that particular horses may be at risk. Piroplasmosis is endemic in many tropical and subtropical areas including Africa, Central and South America, the Middle East, the Caribbean, and parts of Europe. The United States, currently, is not considered to be an endemic area, and piroplasmosis falls under the category of a foreign animal or exotic disease; however, outbreaks do occur occasionally in the United States. Due to the fact that certain areas and countries are not considered endemic for this disease, piroplasmosis is considered a major issue and restraint in international equine travel and shipping.

HOW IT IS SPREAD

Piroplasmosis is a potential disease caused by two known parasitic organisms which include *Babesia caballi* and *Theilertia equi*. These disease causing organisms are considered blood borne and can be **transmitted by tick bites, contaminated needles (such as sharing the same needle between different horses) and instruments, blood transfusions between horses, and in utero from dam to fetus**. The parasite(s) enters a horse's lymphocytes and red blood cells and, consequently, causes these red blood cells to rupture. Ticks are often considered the major source of spread among horses, which occurs when a tick feeds on an infected horse, then, transmits the organism(s) through blood contact by biting an uninfected horse. Currently, fourteen species of ticks are known to be capable of spreading *B. caballi* and/or *T. equi*. The only known natural vector in the United States is *Anocentor (Dermacentor) nitens*, the tropical horse tick. However, other species of ticks found in the U.S. have been shown to transmit the organisms experimentally as well. Since piroplasmosis is considered a foreign or exotic disease in this county and certain ticks found in the U.S. are known to be capable vectors, **major risks to U.S. horses are imported horses, especially those from endemic areas, and international equestrian sports/events**.

CLINICAL SIGNS

Clinical signs seen with piroplasmosis are often very nonspecific and can be variable between horses; this often

makes diagnosis of this disease difficult. The incubation period for *B. caballi* is 10-30 days and 12-19 days for *T. equi*, with most horses showing clinical signs in 7-22 days after exposure to the parasite(s). *T. equi* often causes more severe disease and clinical signs compared to *B. caballi*. The **acute form** of piroplasmosis causes clinical signs consisting of fever, decreased appetite, rapid or labored breathing, congested or yellow, jaundiced membranes, anemia, sweating, petechial (pin-point) hemorrhages on the conjunctiva, and neurologic signs such as hind end weakness. Horses affected by a **mild or subacute form** of the disease may show less severe signs including intermittent fever, weight loss and decreased appetite, weakness, mild colic, lower limb edema, and a rough hair coat. In some cases, sudden death may occur. It is also important to recognize that **some horses may not show any signs or may just show a decrease in performance**. It is thought that naive horses in non-endemic areas tend to have more severe forms of the disease. Once infected, horses usually do not completely clear the organisms and, therefore, usually become carriers and sources of continued infection and spread of the disease; this is especially true in the case of *T. equi* in which horses usually become life-long carriers and possibly, *B. caballi*, in which it may take several years to clear the organism. In endemic areas, horses with clinical signs are **usually treated with imidocarb dipropionate**, but this drug usually does not get rid of the organism(s) and just helps alleviate clinical signs of disease.

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PREVENTION

In efforts to try to prevent this potentially devastating disease, horses imported into the United States are quarantined and tested for evidence of piroplasmosis and the causative organisms. Prior to 2005, imported horses were tested using a complement fixation test, however, it has been found that this test has low sensitivity for chronic carriers of piroplasmosis; therefore, some carriers could be missed when imported into the country. Because of this, it is possible that some horses imported into the U.S. prior to 2005 may be, or have been, carriers and, therefore, infected horses may be in the country today. Currently, imported horses are tested using a more reliable cELISA test that is more sensitive for chronic carriers. **If a horse in the United States is suspected of having piroplasmosis, the veterinarian is required to contact**

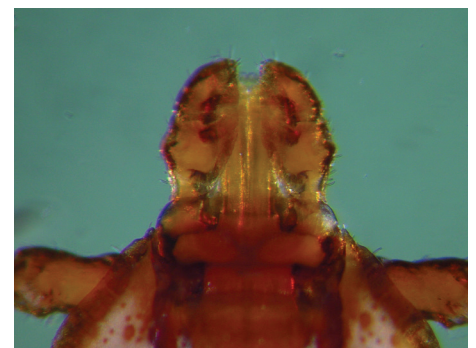
and report the case to state or federal authorities (APHIS).

In addition, **the horse must be quarantined** and prevented from having contact with ticks, or, in some cases, the horse may be euthanized. In cases of international equine events or competition, infected horses may be allowed to compete, but very stringent precautions have to be taken to make sure that contact between infected horses and ticks is prohibited, especially when an infected horse is allowed into a non-endemic area, such as the United States. Currently, there is not a vaccine for piroplasmosis and **prevention is important**. Preventive measures include testing of imported and exported horses, eliminating or preventing contact with ticks, timely removal of ticks found on horses, and preventing transmission of blood between horses by not sharing needles among horses and properly sterilizing and disinfecting equipment.

Although piroplasmosis is an **uncommon disease of horses in the United States**, it is important for horse owners and veterinarians to recognize which horses may be at risk and the clinical signs presented with this disease. Also, some organizations in the U.S. require, or have required in the past, that horses be tested for piroplasmosis prior to competition or travel. It is important to realize that prevention is the main aspect of controlling and protecting horses from piroplasmosis in the United States, especially since the disease is considered to be a foreign animal disease in this country.



Dermacentor sp. Adults; Female (left), Male (right)



Dermacentor sp. Adult; mouthparts

Tick images provided by the UTCVM Parasitology Laboratory.