Canine Babesiosis

Information for Dog Owners

Key Facts

Canine babesiosis, caused by the protozoa *Babesia*, is an emerging infection of dogs. This emergence may be related to increasing ticks (range expansion and abundance) and dog importation.

Specific breeds (i.e. some members of the Terrier group, Greyhounds) are at increased risk of infection.

Dogs can have subclinical disease (i.e. no clinical signs) or illness that ranges from mild (e.g. lethargy, reduced appetite) to severe (e.g. pallor and weakness related to anemia). Severe disease can result in death.

Infection is spread through tick bites and exposure to infected dog blood. Infected dogs, even those without clinical signs, can spread the infection to other dogs, particularly in kennels.

Prevention hinges on effective tick control on dogs and in facilities and through prevention of dog-to-dog transmission through blood (e.g. dog bites, bitch to puppies, blood transfusion).

What is it?

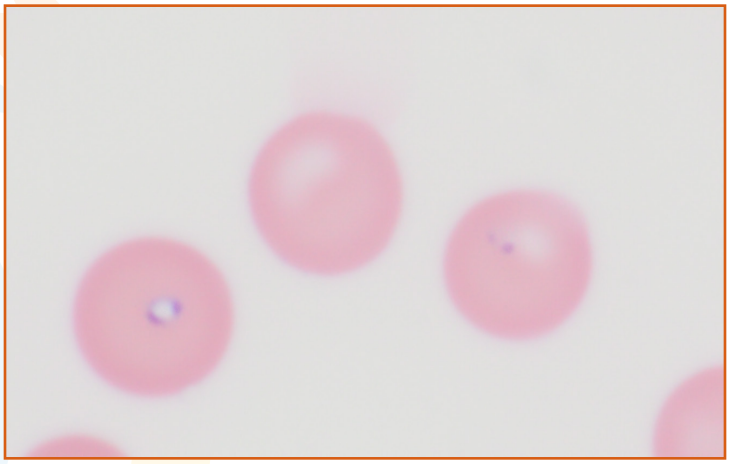
Canine babesiosis can be found worldwide and is due to infection with the protozoa *Babesia*. Several disease-causing species of *Babesia* important for dog health have been identified, including: *Babesia canis* (subspecies *vogeli*, *canis*, *rossi*), *B. gibsoni*, *B. vulpes*, and *B. conradae*.

Veterinarians often diagnose infection incidentally (i.e. subclinical infection) or after owners bring their dog to be examined due to sudden illness, such as not eating, lack of energy, fever, or pallor (pale gums) due to anemia.

Who gets it?

Domestic dogs and cats can be infected with *Babesia* spp.

Dogs of specific breeds (i.e. some members of the Terrier group, Greyhounds), particularly those in group housing such as kennels, are most commonly infected. Other risk factors for infection include lack of appropriate or consistent tick prevention and history of dog bites or blood transfusion.



Babesia vulpes parasites in a canine blood smear under microscopic magnification
(used with permission: Noel Clancey, Atlantic Veterinary College)

Can people get sick with it?

Yes. However, the species of *Babesia* that infect pets are not known to infect people. People can become infected from tick bites with different species of *Babesia* (e.g. *Babesia microti*); dogs are not involved in these human infections.

How is it spread? (Transmission & Infection risk)

In dogs, infection with *Babesia* spp. can occur from tick bites or dog blood. Several species of ticks (brown dog tick, American dog tick) can transmit *Babesia* spp. to dogs after attaching and feeding for 2-3 days.

Transmission of *B. gibsoni* is thought to occur through blood directly from an infected dog (e.g. bites from fighting, blood transfusion, infected bitch to puppies).

Dogs that appear healthy (subclinical, chronic infection or recovered) can still transmit *Babesia* spp. to another dog or tick.

What should I look for? (Signs of disease)

Dogs infected with *Babesia* spp. may have no signs of disease (subclinical) or may have severe or chronic to intermittent disease (waxing and waning fever, lethargy, reduced appetite).

Severe signs of disease are largely due to red blood cell and platelet destruction. Signs can include pallor, weakness, pinpoint bleeding (petechia), and jaundice. Less commonly, kidney disease, neurologic, or respiratory signs (cough, difficulty breathing) can occur.

How is it diagnosed?

Your veterinarian will diagnose canine babesiosis based on increased suspicion in certain breeds (i.e. some members of the Terrier group, Greyhounds), history (e.g. recent history of dog bites, tick exposure), clinical signs, and examination findings.

A complete blood count (CBC) may show anemia and thrombocytopenia (reduced red blood cells and platelets, respectively), or evidence of the *Babesia* organism within the red blood cells.

Further blood testing, such as antibody testing (serology) or a PCR test may be needed to confirm infection and identify the specific *Babesia* species involved.

Coagulation testing, imaging (radiographs, ultrasound) and other diagnostic tests may be advised dependent on disease severity.

In dogs with chronic, intermittent, or subclinical disease, interpretation of test results can be challenging – in this case your veterinarian may advise multiple (serial) blood samples. Referral to a veterinary specialist may be advised.

What is the treatment?

Treatment varies with the infecting *Babesia* species and side effects may occur with any of the treatments.

For *B. canis*, treatment with imidocarb dipropionate is often recommended and believed to cure infection. In dogs infected with *B. gibsoni* or *B. conradae*, a combination of drugs (azithromycin and atovaquone) is advised to reduce disease signs; however, this is not curative. Similarly, in dogs with *B. gibsoni*, imidocarb dipropionate may reduce signs of disease, but is not curative.

Dogs with severe signs will require additional supportive therapy (e.g. blood transfusion, fluid support, careful in-hospital monitoring).

How can I stop this from happening to my dog and other dogs?

Be informed and proactive.

Consistently use effective, veterinary-approved tick prevention for dogs and ensure the use of effective tick control/prevention against the brown dog tick in kennels (e.g. surface acaricide sprays).

Vaccination against *B. canis* is available in Europe and may reduce severity of clinical signs.

You and your veterinarian should discuss and put in place an effective tick prevention plan for your dog, the products and schedule of which will depend on region and canine travel.

Recovered dogs can serve as a reservoir of infection for other dogs and ticks. These dogs must be housed indoors, not allowed to engage in fighting behavior, not used for blood donation, and should be on appropriate tick prevention.

Outbreak management

Dogs suspected or known to currently or previously had babesiosis should not be used as blood donors, bitches should not be used for breeding, and these dogs should immediately be isolated (kept indoors and away from other dogs) to prevent risk of spread to other dogs or ticks that can transmit infection.

The brown dog tick can readily infest indoor areas where dog group housing occurs (e.g. kennels, doggie daycares). Effective prevention measures are critical.

When multiple dogs in a group or at an event become infected, it is recommended to immediately contact someone with experience in veterinary infectious disease risk assessment and outbreak management to help control the further spread of infection. This is particularly important with larger dog group events and facilities such as kennels that house large groups of dogs.

Additional Resources

Stull, JW, et al. (2016), Disease prevention at canine group settings. Includes content on ectoparasite (tick) prevention. Available at: http://vet.osu.edu/preventive-medicine/vpm-research/disease-prevention-canine-group-settings

Birkenheuer, AJ. et al. (2005), Geographic distribution of babesiosis among dogs in the United States and association with dog bites: 150 cases (2000-2003). J Am Vet Med Assoc 227: 942-947. Available at: https://avmajournals.avma.org/doi/abs/10.2460/javma.2005.227.942

Irwin, PI. (2010), Canine babesiosis. Vet Clin North Am Small Anim Pract 40: 1141-1156. Available at: https://www.vetsmall.theclinics.com/issue/S0195-5616(10)X0006-7

Evason, ME. (2019). *Babesia* spp. (babesiosis). In S. Weese & M. Evason (Eds.), Infectious Diseases of the Dog and Cat: A Color Handbook (first edition, 201-204) CRC Press.

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For questions or inquiries please contact us at: chf@akcchf.org or 888-682-9696.

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