



## Bridgeport Veterinary Hospital

# Ehrlichiosis

Ehrlichiosis is a tick-borne infectious disease of dogs, usually carried by the brown dog tick. It first gained attention as a significant disease when military dogs returning from Vietnam during the 1970's were found to be infected. The disease seems to be particularly severe in German Shepherd Dogs and Doberman Pinschers.

The organism responsible for this disease is a rickettsial organism. Rickettsiae are similar to bacteria. *Ehrlichia canis* is the most common rickettsial species involved in ehrlichiosis in dogs, but occasionally other strains of the organism will be found. Because of its origin in military dogs in Vietnam, it has also been called tracker dog disease and tropical canine pancytopenia.

### How is a dog infected with *Ehrlichia*?



Ehrlichiosis is a disease that develops in dogs after being bitten by an infected tick. In the United States, *E. canis* is considered endemic in the southeastern and southwestern states, though the brown dog tick is found throughout the United States and Canada.

"Ehrlichiosis is a disease that develops in dogs after being bitten by an infected tick."

The brown dog tick is the main carrier of the *Ehrlichia* organism in nature. Other tick species, have also been shown to transmit the disease in dogs and may carry other subspecies of *Ehrlichia*.

## What are the signs of ehrlichiosis?

Signs of ehrlichiosis can be divided into three stages: **acute** (early disease), **sub-clinical** (no outward signs of disease), and **clinical or chronic** (long-standing infection).

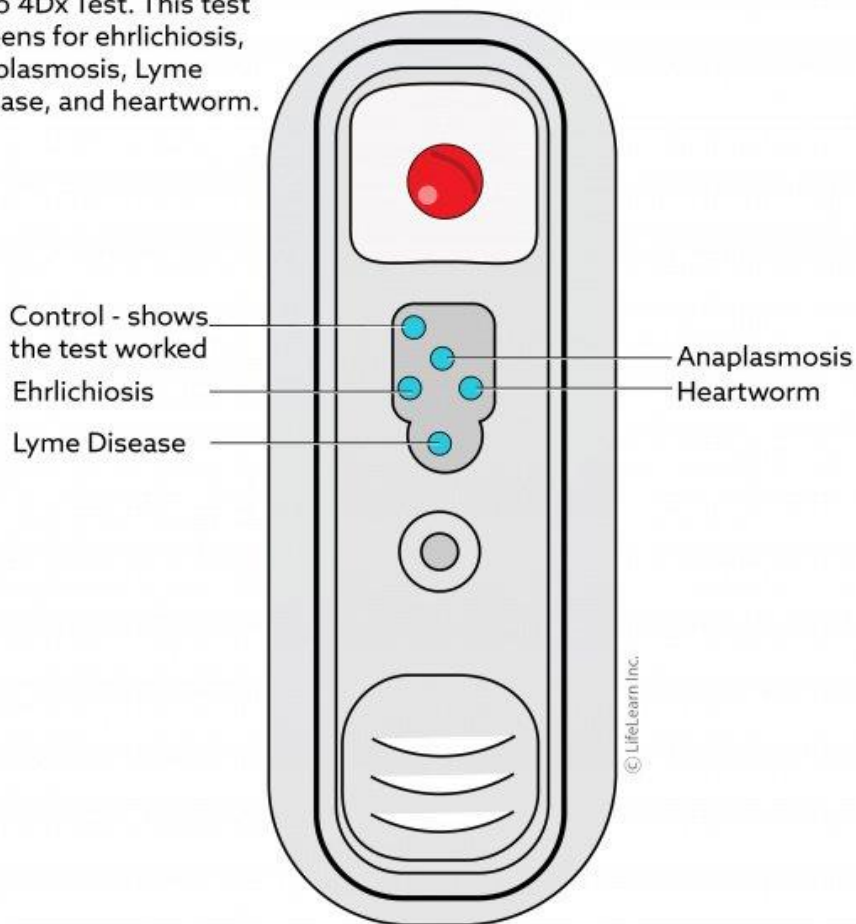
In areas where ehrlichiosis is common, many dogs are seen during the **acute phase**. In this stage, infected dogs may have fever, swollen lymph nodes, respiratory distress, weight loss, bleeding disorders (spontaneous hemorrhage or bleeding), and occasionally, neurological disturbances (they may seem unsteady or develop meningitis). This stage may last two to four weeks and some dogs may eliminate the infection or head in to the sub-clinical phase.

The **sub-clinical phase** represents the stage of infection in which the organism is present, but not causing any outward signs of disease. Sometimes a dog will pass through the acute phase without its owner being aware of the infection. These dogs may become sub-clinical and develop changes observed at the laboratory level, yet have no apparent signs of illness. The sub-clinical phase is often considered the worst phase because there are no clinical signs and therefore the disease goes undetected. The only hint that a dog may be infected during this phase may be after a blood sample is drawn, when the dog shows prolonged bleeding from the puncture site. Dogs that are infected sub-clinically may eliminate the organisms or may progress to the next stage, clinical ehrlichiosis.

**Clinical ehrlichiosis** occurs because the immune system is not able to eliminate the organism. Dogs are likely to develop a host of problems: anemia, bleeding episodes, lameness, eye problems (including hemorrhage into the eyes or blindness), neurological problems, and swollen limbs. If the bone marrow (site of blood cell production) fails, the dog becomes unable to manufacture any of the blood cells necessary to sustain life (red blood cells, white blood cells, and platelets).

### How is ehrlichiosis diagnosed?

Snap 4Dx Test. This test screens for ehrlichiosis, anaplasmosis, Lyme disease, and heartworm.



It may be difficult to diagnose infected dogs during the very early stages of infection. The immune system usually takes two to three weeks to respond to the presence of the organism and develop antibodies.

Since the presence of antibodies to *E. canis* is the basis of the most common diagnostic testing, the early stages of disease dogs may be infected, yet test negative. Testing performed a few weeks later will reveal the presence of antibodies and make confirmation of the diagnosis possible. A quick in clinic test called a Snap 4Dx can confirm exposure. Your veterinarian may use ELISA (enzyme-linked immunosorbent assay) or IFA (indirect fluorescent antibody) tests to determine the severity or species of *Ehrlichia* that is infecting your dog. These tests are sent to outside labs for analysis.

Rarely, the organism itself may be seen in blood smears or in samples of cells taken from the lymph nodes, spleen, and lungs. This is a very uncommon finding. Therefore, detection of antibodies, coupled with appropriate clinical signs, is the primary diagnostic criteria. Baseline blood tests including a complete blood cell count and chemistry should also be done. A low platelet count (called thrombocytopenia), anemia (low red blood cell counts), and/or high levels of the protein globulin in the blood may be found.

A newer test, a PCR assay, is becoming available in certain veterinary laboratories. If a dog is suspected of having ehrlichiosis, this test should be considered.

### **How is ehrlichiosis treated?**

Dogs experiencing severe anemia or bleeding problems may require a blood transfusion. However, this does nothing to treat the underlying disease.

Certain antibiotics, such as doxycycline, are quite effective. A long course of treatment, generally four weeks, is needed. This is the treatment of choice as it is easily accessible and generally well tolerated. Alternatively, imidocarb (not available in Canada) can be used intravenously. Your veterinarian will discuss treatment options with you as some supportive medications such as steroids may be needed depending on the clinical state of the patient and blood parameters.

### **Can anything be done to prevent ehrlichiosis?**

Ridding the dog's environment of ticks and applying flea and tick preventives are the most effective means of prevention. Topical options include Advantix and Frontline Plus (given once per month) or Bravecto (given once every 3 months). Oral chewable options include Nexgard (given monthly), Simparica (given monthly), or Bravecto (given every 3 months). Your veterinarian will help you determine which preventive is right for your dog.

### **Can I get ehrlichiosis from my dog?**

No. However, humans can get canine ehrlichiosis from tick bites. The disease is only transmitted through the bites of ticks. Therefore, even though the disease is not

transmitted directly from dogs to humans, infected dogs serve as sentinels, or warnings to indicate the presence of infected ticks in the area.