

## Ehrlichiosis in Dogs

Ehrlichiosis is an infectious disease of dogs. It first gained attention as a significant disease when military dogs returning from Vietnam during the 1970's were found to be infected.

### Causes/Transmission

The organism responsible for this disease is a rickettsial organism; rickettsiae are similar to bacteria. *Ehrlichia canis* is the most common species involved in ehrlichiosis, but occasionally, other strains of the organism will be found, i.e., *Ehrlichia platys*.

Ehrlichiosis is transmitted to dogs through the bite of infected ticks; the brown dog tick, *Rhipicephalus sanguineus*, is the main reservoir of the organism in nature.

### Clinical Signs

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

**Acute Phase:** In areas where ehrlichiosis is common, many dogs are seen during the acute phase. Infected dogs may have fever, swollen lymph nodes, respiratory distress, weight loss, bleeding disorders, and, occasionally, neurologic disturbances. This stage may last 2 to 4 weeks.

**Subclinical Phase:** The subclinical phase represents the stage of infection in which the organism is present but not causing any sign of disease. Sometimes, a dog will pass through the acute phase without its owner being aware of the infection. These dogs may become subclinical and develop laboratory changes yet have no apparent signs of illness. During this stage, the dog may eliminate the organism, or it may progress to the next stage (chronic ehrlichiosis).

**Chronic Phase:** This stage occurs because the immune system is not effective in eliminating or controlling the organism. Dogs are likely to develop a variety of problems: anemia, thrombocytopenia (decreased platelets, the blood clotting cells), bleeding episodes, lameness, eye problems (including hemorrhage into the eyes), neurologic problems, and swollen joints. 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).

### Diagnosis

It may be difficult to diagnose infected dogs during the very early stages of infection. The immune system usually takes 2-3 weeks to respond to the presence of the organism and develop antibodies. Since the presence of antibodies to *Ehrlichia canis* is the basis of the most common diagnostic test, such 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. If the dog is tested only for *E. canis*, other strains of the organism may not be detected.

Rarely, the organism itself may be seen in blood smears or in aspirates of cells from lymph nodes, spleen, and lungs. This is a very uncommon finding. Therefore, detection of antibodies, coupled with appropriate clinical signs, are the primary diagnostic criteria.

### Treatment

Dogs experiencing severe anemia or bleeding problems may require a blood transfusion, initially. However, this does nothing to treat the underlying disease and is performed only to get the dog out of a crisis.

Drugs in the tetracycline family are the first choice to rid the dog of the organism that causes ehrlichiosis. It should be noted that even with appropriate treatment, not all dogs will be cleared of the organism. Doxycycline are usually quite effective. Occasionally another antibiotic, enrofloxacin, may be needed.

It has been traditionally recommended to treat infected dogs for 10-30 days, depending on the severity of the infection and clinical signs. Some dogs may need to be treated for 2-4 months.

### **Prognosis**

Dogs with normal immune systems will usually recover, although they remain susceptible to reinfection. Dogs with weak immune systems and those that have progressed to the terminal stages of infection (bone marrow failure) have a guarded prognosis.

### **Transmission to Humans**

The dog cannot transmit ehrlichiosis to humans, although humans can contract one strain of the organism (*Ehrlichia chaffeensis*). The disease is only transmitted to humans through the bites of ticks. Thus, although the disease is not transmitted directly from dogs to humans, infected dogs serve as sentinels to indicate the presence of infected ticks in the area and may be a source of the organism for infections in humans or other dogs.

### **Prevention**

Ridding the dog's environment of ticks is the most effective means of prevention. You should discuss effective tick prevention with your veterinarian. Even if you do not see ticks on your dog, your dog can still pick up a tick every now and again. This can be enough to be infected with Ehrlichia.