Department of Primary Industries and Regional Development

GOVERNMENT OF WESTERN AUSTRALIA

Ehrlichiosis in dogs (*Ehrlichia canis*) – information for vets

What is ehrlichiosis?

Brown dog tick

Ehrlichiosis is a tick-borne disease caused by the organism *Ehrlichia canis*, an obligate gram negative intracellular bacteria. *E. canis* occurs worldwide, particularly in tropical and subtropical regions.

E. canis was detected in a small number of dogs in the Halls Creek and Kununurra areas in May 2020. This is the first detection of ehrlichiosis in dogs in Australia that have not been imported from overseas.

The Department of Primary Industries and Regional Development (DPIRD) is liaising with the owners of the affected dogs and their private vet, and will work with private vets in the region to carry out further surveillance to determine the extent of spread.

Infection with *E. canis* (ehrlichiosis) is a notifiable disease in Australia. If you suspect ehrlichiosis, call your DPIRD vet or the Emergency Animal Disease hotline on 1800 675 888.

Aetiology

E. canis is transmitted primarily by the brown dog tick (*Rhipicephalus sanguineus*), which is widely distributed worldwide and is present in Australia. Transmission within the tick is transstadial (passed from larva to nymph to adult). Unexposed ticks acquire the organism after feeding on an infected dog, then transmit the infection to other dogs during successive life stages. The organism can also be transmitted through blood transfusions.

Infection with *E. canis* causes ehrlichiosis, previously known as canine tropical pancytopenia.

Clinical signs

Ehrlichiosis has three phases of disease: acute, subclinical and chronic. Severity of disease can vary considerably among dogs. The incubation period for the development of acute disease is about 1–3 weeks, although the chronic form of ehrlichiosis may not manifest until months or years after infection.

Acute

Acute disease is characterised by non-specific signs such as fever, lethargy, lymphadenopathy, anorexia and weight loss. Other signs include ocular and nasal discharges and bleeding tendencies including petechiae, ecchymoses and epistaxis. Thrombocytopenia is a common haematological finding. This phase typically lasts for 2–4 weeks.

Subclinical

Some dogs that recover from the acute phase may become subclinically infected, along with a subset of dogs that show mild or no early clinical signs. This subclinical phase can persist for months to years. A mild thrombocytopenia may be present in the absence of clinical signs. Dogs in this phase may clear the organism, remain asymptomatically infected or progress to the chronic form of ehrlichiosis.

Chronic

Only some dogs will develop chronic ehrlichiosis. Clinical signs are similar to those seen in the acute phase but are more severe. Clinical signs can include fever, weakness, weight loss, bleeding disorders, pallor, dyspnoea, splenomegaly, hepatomegaly, ocular and neurological abnormalities and increased susceptibility to secondary infections.

Haematological abnormalities include severe thrombocytopenia and nonregenerative anaemia. Pancytopenia can occur as a result of bone marrow hypoplasia.

Differential diagnoses

Differential diagnoses may include anaplasmosis, babesiosis, lymphoma, multiple myeloma and other immune-mediated disease.

Sampling and diagnosis

Infection with *E. canis* is a nationally notifiable disease. If you have a suspect case, contact your DPIRD vet or the Emergency Animal Disease hotline on 1800 675 888 so the Department can assist with managing the case and advise on sampling requirements.

Diagnosis of ehrlichiosis is achieved through serological and/or molecular testing. The diagnosis is supported by clinical signs, haematological and serum biochemistry abnormalities and response to treatment.

Submission of samples

Vets investigating a suspected case of ehrlichiosis should first notify their local DPIRD vet and then submit the following samples to DPIRD Diagnostics and Laboratory Services, Baron Hay Ct, South Perth, WA:

- blood samples in EDTA and serum tubes
- ticks collected from the affected dog either dry or placed in ethanol.

Serology

The immunofluorescent antibody test (IFAT) detects IgG antibodies against *E. canis*. IFAT is generally used as the first screening test. Antibodies may not be detectable early in disease and titers can persist for months to years after the infection is resolved.

Molecular detection

PCR tests detect organism-specific DNA in the blood. PCR can be positive before seroconversion occurs and can detect an active infection.

Prevention

To help prevent *E. canis* infection:

- Maintain dogs on a tick control program.
- Avoid taking dogs into tick-infested areas such as the bush where possible.
- Inspect dogs for ticks after being in tick-infested areas and carefully remove any ticks.

Zoonotic aspects

While infected dogs do not transmit ehrlichiosis to people, in rare cases, infected ticks may transmit *E. canis* to people. See the Department of Health website for information on human health implications associated with ticks, as well as prevention, removal and first aid advice.

Dog movement controls

While surveillance is being carried out to determine the distribution of *E. canis*, conditions on dog movements out of the Kimberley region have been put in place to reduce the spread of the disease. Under the *Exotic Diseases of Animals Act 1993* Control Order No. 1/2020, movement conditions apply to the shires of Broome, Derby-West Kimberley, Halls Creek and Wyndham-East Kimberley. Please refer to the Kimberley Dog Controlled Area – dog movement conditions webpage for more information.

More information

More information is available on the DPIRD website at agric.wa.gov.au/ehrlichiosis.