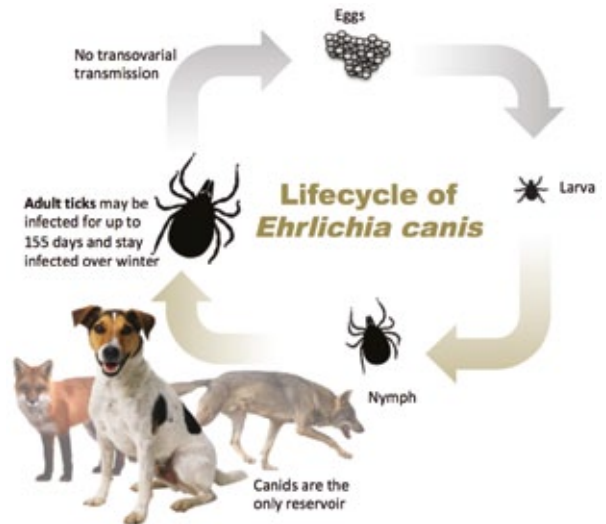


## *Ehrlichia* spp.

- Ehrlichiosis is a tick-borne disease caused by *Ehrlichia* spp, an obligate intracellular gram-negative bacterium of the *Anaplasmataceae* family.
- In Europe, *Ehrlichia canis* causes canine monocytic ehrlichiosis (CME)
- The tick *Rhipicephalus sanguineus* is its main vector in Europe.
- Dogs and wild canids act as reservoirs.
- The disease has a subclinical, acute asymptomatic phase and chronic phase. The prognosis for chronically sick dogs is poor, which is why CME is sometimes called the “silent killer”.
- The incubation period is 1-4 weeks.
- German Shepherds and Siberian Huskies appear to be more susceptible to clinical ehrlichiosis with more severe clinical presentations than other breeds.



## When to suspect infection?

### ■ Clinical signs

- Weight loss, anorexia, lethargy, fever
- Bleeding disorders: petechiae/ecchymoses of the skin, mucous membranes and conjunctivas, hyphaema, epistaxis
- Lymphadenomegaly
- Splenomegaly
- Ocular signs: conjunctivitis, uveitis, corneal oedema
- Neurological signs (less common): seizures, ataxia, paresis, hyperaesthesia, cranial nerve deficits (meningitis/meningoencephalitis)

### ■ Clinical pathology

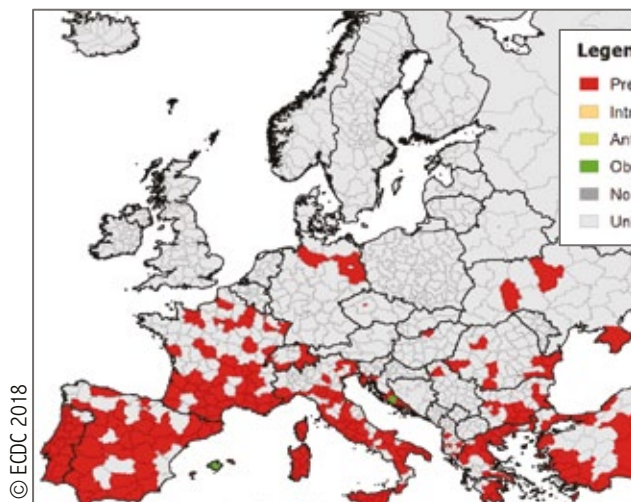
- Thrombocytopenia is the most consistent haematological abnormality
- Pancytopenia (chronic cases)
- Non-regenerative anaemia
- Polyclonal gammopathy
- Hypoalbuminaemia
- Autoagglutination, Positive Coombs test
- Intracellular bacteria (morulae) in monocytes (very rare)

### ■ Origin / travelling history

- Dogs that live in, originate from or have travelled to countries where the parasite is endemic are at risk.
- Dogs in countries not currently considered endemic should not be considered free of risk.

## How can it be confirmed?

- **Blood smear:** Visualisation of intracellular bacteria on blood smears stained with Giemsa or similar. Sensitivity is poor: *E. canis* morulae in monocytes are visualised in only 4% cases of acute infections. Nevertheless, if performed by an experienced person, it is a useful initial test to evidence of blood-borne parasites (concurrent infections with other pathogens like *Babesia* sp. and *Hepatozoon canis* is common).
- **Serology** (ELISA and IFAT) for the detection of antibody levels. Whole bacteria antigen is used. In everyday practice, IFAT and ELISA are commonly used for *E. canis* diagnosis; both are highly sensitive. It takes 3-4 weeks for antibodies to develop post-infection. It is a useful test to screen for exposure to infection, but it should always be interpreted in



Distribution of the tick *Rhipicephalus sanguineus* (January 2018), vector of *E. canis*



Countries in which *E. canis* has been reported

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Source: Charalampos Attipa

# Ehrlichiosis in dogs

the light of clinical signs and patient history. It is recommended to run two consecutive tests 1-2 weeks apart. In cases of active infection there is a fourfold increase of antibody levels. Cross reactivity between *Ehrlichia* spp and *Anaplasma phagocytophilum* should be considered.

- **PCR** on blood and tissues (spleen). Very specific and indicative of current infection. Detection of *E. canis* DNA as early as 4-10 days post infection. PCR screening of blood donors is strongly advised.
- It is important to confirm or rule out concurrent infections that may be transmitted by the same vector.

## Disease management

- Doxycycline 10 mg/kg q24h PO for 28 days is the treatment of choice for acute ehrlichiosis
- In acute cases, clinical improvement is normally seen within 24-72 hours.
- Treatment for more than 4 weeks may be required to eliminate infection
- After treatment, *E. canis* antibody titres may persist for a long period of time (years).
- Seropositive dogs remain susceptible for reinfection.
- Supportive care – For kidneys if renal compromise, blood transfusion in cases of severe anaemia, plasma/blood products for thrombocytopenia.
- Imidocarb dipropionate has traditionally been used to treat infection but no efficacy has been proven. In cases that do respond this may be due to co-infection with other tick-borne infections such as *Babesia canis*

## Prognosis

- The prognosis for acute ehrlichiosis, the most common form of the disease, is good.
- The prognosis for chronic ehrlichiosis is poor. Severe pancytopenia and prolonged APTT are strong predictive signs of mortality.



*Certain breeds such as Siberian Huskies appear to be more susceptible to clinical ehrlichiosis.*

## Prevention

- **Use of tick prevention products** - transmission is positively related to attachment duration, a product which rapidly kills or repels ticks will reduce the risk of disease transmission. The more rapidly this is achieved, the greater the protective effect. Choice of the product should also be based on compliance, lifestyle factors, owner capabilities and other parasiticide needs for the pet.
- Tick prevention will also reduce the risk of other tick-borne diseases, such as Lyme disease and anaplasmosis.
- **Checking for ticks** - dogs should be checked for ticks at least every 24 hours in situations of high-risk exposure. Ticks found should be removed immediately without stressing them - this again increases the risk of disease transmission.

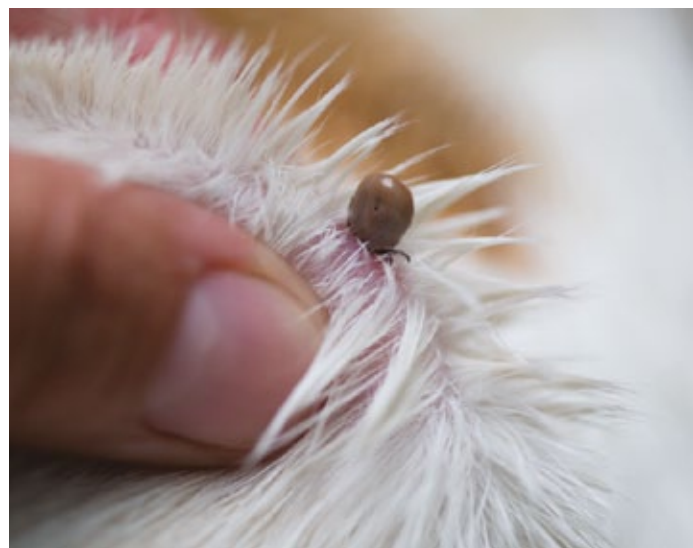
## Travel advice

- Use of a product that kills or repels ticks will reduce the risk of exposure to tick-borne pathogen transmission while travelling.
- No tick preventative product is 100% effective. Dogs should therefore also be checked at least every 24 hours for ticks and any found tick immediately removed.



© Photo courtesy Tryfon A. Chochlios

*Petechia of the skin in a dog with ehrlichiosis.*



*Dogs should be checked for ticks at least every 24 hours in situations of high-risk exposure.*