

# Ehrlichiosis

**Etiology :** *Ehrlichia canis*

*Ehrlichia canis* is the cause of classical ehrlichiosis in dogs. This *Ehrlichia* targets **MONOCYTES** and is transmitted by *Rhipicephalus sanguineus*, the "**brown dog tick.**"

## Pathogenesis:

- The acute stage of disease is due largely to a vasculitis. The organism replicates in circulating monocytes, and subsequently in mononuclear phagocytic cells throughout the body. The infected monocytes bind to vascular endothelial cells and initiate a vasculitis and subendothelial cell infection. (Because of the vasculitis, dogs with ehrlichiosis may also demonstrate edema.
- The chronic stage of disease reflects bone marrow suppression.
- The thrombocytopenia in ehrlichiosis may be due to consumption of platelets,
- sequestration of platelets in the spleen,
- immune-mediated destruction of platelets, decreased bone marrow production of platelets, or some combination of these mechanisms. Overall, however, the basis for ehrlichial thrombocytopenia remains unclear.

## **Clinical disease in dogs:**

*Ehrlichia canis* infection in dogs is divided into 3 clinicopathologic stages:

- **acute phase of disease:**
  - fever, anorexia, lethargy ,lymphadenopathy ,**thrombocytopenia**
  - This phase begins 1-3 weeks after exposure.
  - Most dogs recover at this point, but others progress to the subacute and chronic phases
- **subacute phase of disease:**
  - hypergammaglobulinemia (polyclonal or sometimes monoclonal gammopathy), **thrombocytopenia** and anemia ,usually subclinical, but can last months to years
- **chronic phase:**
  - lethargy, weight loss
  - **PANCYTOPENIA, BONE MARROW SUPPRESSION AND HEMORRHAGE**
  - Mortality can be high in dogs that progress to the chronic stage of disease.
  - Progression to subacute and chronic disease is generally attributed to an ineffective immune response on the part of the dog. German Shepherd dogs appear to be predisposed to the severe, chronic form of disease.

- Animals with ehrlichiosis can also exhibit uveitis, retinal hemorrhages and CNS disease, due either to CNS vasculitis or hemorrhages. In addition, dogs in the early stages of disease may manifest a lymphocytosis with cell granularity typical of lymphocytic leukemia.

## Diagnosis

-clinical signs

Morulae inclusions in blood monocytes are transient, so you can't depend upon seeing these to make a diagnosis.

- serology
  - An IFA test has been the standard approach for many years to confirm a clinical diagnosis of ehrlichiosis, but ELISA, immunoblotting and PCR assays are becoming available.

## Treatment

- tetracycline
- doxycycline
- If immune-mediated secondary reactions to the *Ehrlichia* are a problem (such as immune-mediated arthritis, or immune-mediated platelet loss) **corticosteroids such as prednisone can be used to** palliate the situation while the antibiotics are starting to work.
- Resolution of thrombocytopenia is a good indicator of positive response to therapy. Platelet counts generally begin to rise within 48 hours of starting therapy and are normalized within 14 days.
- Long-term maintenance of antibody titers preclude using serology to monitor response to therapy.