Fact sheet

Babesiosis in cats

What is babesiosis?
- Babesiosis is a vector-borne disease caused by Babesia (B.) spp., a common protozoal blood parasite in mammals worldwide.
- The small B. felis seems to be the most important pathogenic species in cats. It is found mainly in South Africa.
- In Europe, infections with Babesia spp. (mainly B. canis-like species, B. microti-like species) causing mild chronic disease in cats are described only sporadically.

Infection
- Babesia is usually transmitted by different tick species. The definitive vector for Babesia in cats has not been identified.
- Babesia replicates in erythrocytes producing merozoites from asexual budding.
- Ticks are infected by ingesting merozoites during feeding. Replication of the parasite within the tick’s salivary cells results in sporozoite formation. When infected ticks feed, the sporozoites are regurgitated into the bloodstream of the host.
- Babesia can also be transmitted iatrogenically, e.g. through blood transfusions.

Clinical signs and laboratory findings
- Most clinical signs are secondary to haemolytic anaemia due to intraerythrocytic infection by the parasite: pale mucous membranes, lethargy, anorexia and a rough haircoat. Cats usually adapt to the anaemia and may show only mild clinical signs.
- Concurrent infection with Mycoplasma hemofelis, feline leukaemia virus (FeLV) or feline immunodeficiency virus (FIV) can contribute to the clinical presentation and severity of disease.
- Complications of babesiosis include renal failure, pulmonary oedema, hepatopathy and central nervous system signs. Fever and icterus are uncommon in cats.
- Typical laboratory findings are regenerative, macrocytic, hypochromic anaemia.
- In experimental infection, anaemia is most pronounced approximately three weeks after infection.
- Secondary immune-mediated haemolytic anaemia with anti-erythrocyte auto-antibodies can be seen occasionally leading to a positive Coombs’ test and auto-agglutination.
- On serum biochemistry, increased total bilirubin concentration is commonly detected. ALT activity is often significantly elevated. Polyclonal gammopathy has been observed in cats with hypergammaglobulinaemia leading to high total protein concentrations.

Diagnosis
- Babesiosis in cats is usually suspected when merozoites are detected in blood smears. However, detection of the organism on blood smears can be difficult since the level of parasitemia commonly is very low.
- PCR from whole blood is the best test for definitive diagnosis of Babesia spp. infection in cats. PCR techniques have been developed that are able to detect several Babesia spp. (sequencing usually is required to determine infecting species).
- Antibody testing has not been established in cats so far.

Disease management
- Primaquine phosphate is the treatment of choice for cats infected with Babesia spp. It should be administered at 0.5 mg/kg orally or subcutaneously.
  - Repeated courses of three days of treatment might be required.
  - Treatment has to be monitored carefully, because dosages exceeding 1 mg/kg can be lethal in cats.
- Chronic persistent infections and recurrence of clinical disease can occur.

Prevention
- Effective tick control is the best way to avoid infection with Babesia spp.
- Indoor-only cats have a very small risk of getting infected.
Blood smear of a cat with Babesia spp. in erythrocytes.

Characteristic “Maltese cross” tetrad formation in infected erythrocyte.