

Feline Babesiosis

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Introduction

Feline Babesiosis is the tick borne protozoal disease caused by *Babesia felis* and is characterized by a febrile, chronic low grade disease. The most frequently reported complaints by owners are anorexia and lethargy. Feline babesiosis is assumed to be tick transmitted as the vector has never been isolated. The main clinical findings are anaemia, depression and occasionally icterus.

Etiology

Domestic Cats - *Babesia felis*, *B.cati*

African Wild cats - *B.herpailuri* and *B.pantherae*.

Dennig and Broaklesby(1972) suggested that *B.felis* and *Nuttalia felis var domestica* should all be considered to be a single species, named *B.felis*.

They further proposed that all feline piroplasms should be divided into either of two small babesia (*B.felis* and *B.cati*) or two large Babesias (*B.herpailure* and *B.panthera*). Of the small babesia, *B.felis* has been reported to occur most commonly in domestic cats, but it appear to have a wide host range within the cat family. Haemophysalis tick recovered from the cat was considered to be the source of infection (Mudaliar,et.al.1950).

Epidemiology

B.felis is a small babesia parasite and has been reported from France,Germany, Thailand and Zimbabwe, but only appears to cause clinical disease in south africa. A seasonal variation occurs with the highest incidence in the summer months. Although canine and feline babesiosis can occur in animals of all ages, the majority of the cases are in young animals.

Life cycle of Babesia

In the adult tick, schizogony occurs in the gut epithelial cells, results in the formation of large merozoites. These merozoites then undergo successive cycles of the schizogony within a variety

of cell types, including the oocytes. In the salivary glands, schizogony results in the formation of small, infective merozoites. After the tick has attached to the host and feeds, the merozoites in the tick saliva enters the host erythrocytes within the aid of a specialized apical complex. Inside the erythrocyte, the merozoites transforms into a trophozoites, from which further merozoites develop by a process of merogony. Once divided, they leave the cell to enter the erythrocytes. Both tras-stadial and trans-ovarian transmission can occur and it is believed that a tick can remain infective for a number of generation.

Clinical findings

Common signs include anorexia, weight loss and anaemia. Less common signs include icterus, vomition, pica and respiratory signs. The disease can be protracted and often clinically silent until fairly far advanced. A variety of electrolyte abnormalities occure in number of cats but no co-pattern of change could be identified. Concurrent infection with Haemobartonella felis, feline immune virus and/or leukemia virus, mycoplasma was identified in number of cases.

Clinical pathology

Macrocytic hypochromic anaemia is the most common haematological finding whereas white cell and thrombocyte counts can be variable and inconsistent. Anaemia is the suggestive of the presence of active red blood cells regeneration, signs of bone marrow erythropoiesis are also evident on blood smear examination and includes the presence of reticulocytes, numerous nucleated red blood cells, marked angiocytopsis, polychromasia, increased amount of Howell jolly bodies (in excess of 1% RBC) and basophilic stippling of some red blood cells. All these signs are indicative of regenerative bone marrow response to anaemia (Flutter,G.J. and Bolonje,P.C.1980; Penzharn, B.L.,et.al.,2000).

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The most remarkable changes in the serum biochemistry are; Elevated ALT activity, Hyperbilirubinuria. Other biochemical parameters are generally variable and inconsistent.

Diagnosis

The diagnosis of Babesia is made by demonstrating babesia organism within infected erythrocytes on a blood smear stained with a Romanowsky type stain. Large (2x5micron) pear shaped organism usually present in the pairs are indicative of B.canis and various shape can be seen. In the less endemic area-serology and PCR may be more reliable method for detecting occult parasitemia.

Therapy

The drug of choice is the anti-malarial, Primaquine phosphate given at 1 mg/cat every 36 hours for four time, then 1mg/cat every 7 days for four time. Primaquine phosphate is known not to sterile the infection after treatment, which is crucial in the development of premune stage.

Doxycycline-5mg/kg b.i.d. for 21 days has some effect. Blood transfusion in the life threatening anaemia: It should be based on clinical signs, history

and haematological testing. PCV is the component of the choice for babesiosis.

Supportive therapy: It should be based on thorough patient assessment and ongoing monitoring, appropriate laboratory testing, accepted therapeutic principle for the complications.

Prevention

The primary mean of the disease prevention is the control of the vector tick by routinely dipping or spraying pets, using tick collars or spot on preparations and spraying on the premises. Antiektoparasitic agents such as fibronil are also effective. As babesia organism can be transmitted by blood transfusions, it is important that all blood donors are negative for babesiosis.

References

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According to the National Commission on Agriculture (1976), horses in India can be placed broadly in two classes viz. the slow moving pack ponies and the fast running saddle horses used for riding or for drawing carriages. The indigenous breeds of horses/ponies include Marwari, Kathiawari, Manipuri, Spiti, Bhutia and Zanskari. Among these, Marwari and Kathiawari are considered as 2 distinct breeds or types although they have several characteristics in common. Kathiawar (Gujarat) and Rajasthan are the homes of Kathiawari and Marwari breeds, respectively. These breeds have been selected both for utility and beauty. Bhutia, Spiti and Zanskari ponies, mainly found in the hilly areas of Himalayan ranges are slow moving horses. The Manipuri horses having qualities of both hill and plain breeds of horses have been bred over centuries in the Manipur area of the northeast. Manipuri horses reputed for their intelligence are used for polo and racing. Three other breeds of India namely Deccani, Chummarti and Sikang are considered to be on the verge of extinction.

The exotic breeds of horses introduced in India include English thoroughbred, Water, Arab, Polish, Connemera and Halfinger. The Arab, the first to be introduced, is believed to have contributed substantially for the evolution of Kathiawari, Marwari, Sindhi, Malani and Manipuri horses. It is believed that all the indigenous breeds of the horses are rapidly deteriorating in quality as a result of lack of organized systematic breeding and availability of good specimen animals. Unless huge financial commitment is made, there is a possibility of the breeds losing their identity even in their home tract.