

HEPATOZOON CANIS INFECTION IN A BITCH

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SUMMARY

A six year old Cocker Spaniel bitch with a history of weakness, recurrent and intermittent fever, hyper aesthesia, inappetence, tick infestation and severe joint pain in the limbs was examined. Blood smear examination revealed intra-leucocytic gamonts of the parasite *Hepatozoon canis*. The results of hemogram were indicative of the chronic infection with low hemoglobin, non regenerative anaemia, neutrophillia, hypoalbuminemia, hypoglycemia and increased alkaline phosphatase activity and platelet count. The bitch was treated with a single dose of diaminazine aceturate @ 5mg/kg b.wt., i/m, along with oral administration of doxycycline, analgesics and supportive therapy. The bitch started recovering steadily and there was a gradual reduction of joint pain which completely subsided after treatment.

Key words: Bitch, diaminazine aceturate, *Hepatozoon canis*

Blood protozoan infections in companion animals are a matter of concern for the canine practitioners (Singh *et al.*, 2011). Hepatozoonosis is a tick borne, polysystemic infection of dogs, cats, coyotes, foxes and other wild canids and is caused by a protozoan parasite *Hepatozoon canis*. It is transmitted by *Rhipicephalus sanguineus* commonly known as brown dog tick. Transmission of *H. canis* occurs when the infected tick or the parts of the infected tick containing oocysts are ingested by the dog (Baneth, 2006). Vertical transmission of this protozoan infection also occurs in dogs (Murata *et al.*, 1991). *H. canis* infection in dogs is widely prevalent in Southern Europe, Africa, South America and Asia (Murata *et al.*, 1993).

A six year old, Cocker Spaniel bitch, weighing 16 kg was presented with a history of inappetence, tick infestation, recurrent and intermittent fever for the past three weeks. The owner reported that the bitch had severe joint pain in limbs and mild cough. The bitch suffered from recurrent episodes of fever, anorexia, joint pain for the past one year and there was a gradual loss of body weight. On clinical examination, the bitch was found dull, weak and depressed with rough hair coat. The animal was hyper-irritable, hyper-aesthetic and had difficulty to rise and to sit. Rectal temperature was 104.8°F, respiration rate was 42 breaths/min. and

the mucous membranes were congested. Earlier, the bitch was treated but with no response. Blood collected from the bitch was subjected to haematology and blood smear was examined for protozoans.

Giemsa stained blood smear examination revealed intra-leucocytic gamonts of *H. canis*. The results of hemogram analysis showed haemoglobinemia, neutrophillia, eosinophillia, hypoalbuminemia, hypoglycemia with an increase in the total proteins, and alkaline phosphatase activity. A marginal increase in the number of platelets was also observed. The bitch was treated with a single dose of diaminazine aceturate @ 5mg/kg b.wt. via the intramuscular route along with oral administration of doxycycline @10mg/kg b.wt. once daily for two weeks. Vetalgin, an analgesic was also administered via the intramuscular route for a period of one week to alleviate acute joint pain and inflammation. Supportive therapy with oral medications of liver extract, vitamin C and B-complex and iron preparations was given in recommended doses for a period of three weeks. The bitch started recovering steadily and there was a gradual reduction in joint pain and inflammation which completely subsided after treatment.

To avoid the relapse of this infection, the owner was advised to get the animal re-tested for blood protozoans after 2-3 months. Upon re-examination after 70 days of the treatment, an improvement in the hemogram

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was observed and the protozoa *H. canis* was not detected in the blood smear. The bitch had gained body weight and her appetite was normal. Pain in the joints of long bones and para spinal area was also relieved.

Out of at least six species of canine tick-borne pathogens present in India, *H. canis* is the most common species (Ghosh *et al.*, 2007; Megat Abd Rani *et al.*, 2011). Susceptibility to hepatozoonosis is age dependent and is seen more commonly in the young animals (Otranto *et al.*, 2011). In dogs hepatozoonosis occur in three forms i.e. sub-clinical, acute and chronic with sub-clinical form being the most frequent in the north-west region of India (Sharma *et al.*, 1997). *H. canis* is usually associated with the sub-clinical and chronic forms, while acute form was caused by highly virulent *H. americanum* (Baneth *et al.*, 2003). In the present case, the bitch seemed to be suffering from chronic form of the disease as there were instances of expression and remission of clinical symptoms which is in accordance with the observations of Barton *et al.* (1985). Normocytic, normochromic anemia and an increase in neutrophils and eosinophils were also indicative of chronic protozoan infection.

Primary site for schizogony and merozoite penetration is leucocytes and their development to gamonts occurs in the bone marrow (Baneth *et al.*, 2003) which could be the reason for non-regenerative anemia. The schizonts form clusters of neutrophils in the muscles and probably are the cause of pain and fever (Gevrey, 1993; Baneth *et al.*, 1995). Increase in total proteins has earlier been reported with a decrease in the serum albumin (Vincent-Johnson *et al.*, 1997). Increase in serum alkaline phosphatase activity may be due to glucocorticosteroids administration and liver inefficiency.

Imidocarb dipropionate is the primary drug used in the therapy of canine hepatozoonosis and is often combined with doxycycline to treat possible co-infections (Ivanov and Tsachev, 2008). In the present case, a single dose of diaminazine aceturate with doxycycline was administered for 14 days and the

gamonts of the protozoan parasite could not be detected after 70 days of the treatment. Antibiotics like clindamycin and potentiated sulfonamide alongwith anticoccidial agents have been used for a period of two years for the treatment of acute canine hepatozoonosis (Jadhav *et al.*, 2011), however, relapses are common once the treatment is discontinued.

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