

Clinical and Ultrasonographic Alterations in Canine Babesiosis

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ABSTRACT

Canine babesiosis is a worldwide tick borne disease. Dogs with fever, in appetite and enlarged lymph nodes were screened for the presence of haemoprotzoan parasites during the one year period of study at T.V.C.C., C.V.Sc., Mhow (M.P., India). Based on the stained peripheral blood smears examination, dogs were found to be affected with babesiosis. Clinical examination of the dogs revealed ticks over the body, highest frequency (75.00%) of petechial/epistaxis followed by ticks (72.22%) on the body, recumbency (69.44%), dullness (66.66%), dehydration (63.88%), pale mucous membrane (50.00%). Sonographic changes in dogs infected with babesiosis revealed hepatomegaly with architectural changes, hypo-echoic changes in the liver parenchyma in 7 dogs, splenomegaly with disturbed architecture and multiple lesions was observed in 9 dogs, cystitis in 5 dogs, distended gall bladder in 3 dogs and in 4 dogs Kidneys structures were not clear in image and no demarcation noticed between cortex and medulla.

Keywords: Babesia, Canine, Ultrasonography.

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INTRODUCTION

Canine babesiosis is a tick-borne disease with a worldwide distribution that can involve multiple organs and result in a wide variety of clinical manifestations

A number of *Babesia* sp. can infect dogs. Infection in a dog may occur by tick transmission, direct transmission via blood transfer from dog bites, blood transfusions, or transplacental transmission.

Canine babesiosis can be classified clinically into an uncomplicated and complicated form (Lobetti, 2004). Multi systemic organ dysfunction complications affecting the liver, kidneys, spleen and pancreas have been described in natural cases of canine babesiosis. They are probably caused by hypoxia, free radicals, disseminated intravascular coagulopathy and release of inflammatory mediators. The aim of the present study was to evaluate the clinical and ultrasonographical changes in canine babesiosis.

MATERIALS AND METHODS

The dogs presented at TVCC Veterinary College Mhow with the history of fever, not responded to antibiotics treatment and following clinical observations, presence of ticks on body, bleeding from the nostrils, melena, anaemia and jaundice were included in the present study. Blood samples were collected aseptically from cephalic vein, stained with Giemsa stain and examined under oil immersion for presence of haemoprotzoa. The Ultrasonographic changes in liver, kidneys, spleen and urinary bladder were studied in 12 babesia positive dogs by using Toshiba machine.

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RESULTS AND DISCUSSION

Clinical findings

Clinical examination of the dogs revealed ticks all over the body, Out of 36 dogs suffering from babesiosis the highest frequency (75%) of petechial/epistaxis hemorrhagic condition was observed followed by ticks on body (26/36, 72.22%), recumbency/prostration (25/36, 69.44%), dehydration (23/36, 63.88%), Pale mucus membrane (18/36, 50%), congestion (6/36, 16.66%) and icteric (12/36, 33.33%). Similar clinical findings were observed by Cardoso *et al.* (2010) and Reddy *et al.* (2014).

Gastrointestinal signs such as anorexia were observed in 18 (50%), vomiting/nausea 9 (25%), Diarrhoea 4 (11.11%) and Salivation 5 (13.88). Some other manifestations were in the order of nervous dullness/depression (24, 66.66%), arrhythmia (22, 61.11%), weak pulse (13, 36.11%) ataxia (11, 30.55%), nasal

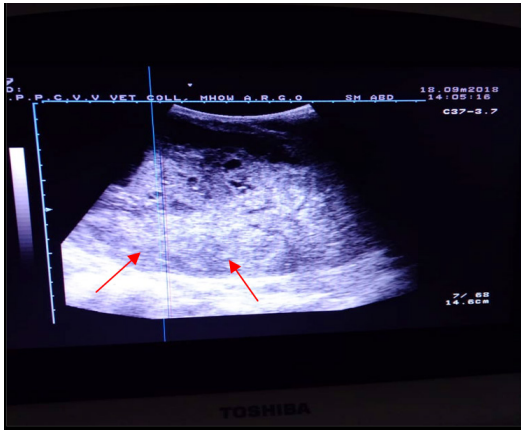


Fig. 1: Ultrasonographic changes in liver of a dog suffered from Babesiosis (Hypo-echoic changes in the liver parenchyma and smooth contour of liver indicated hepatomegaly)

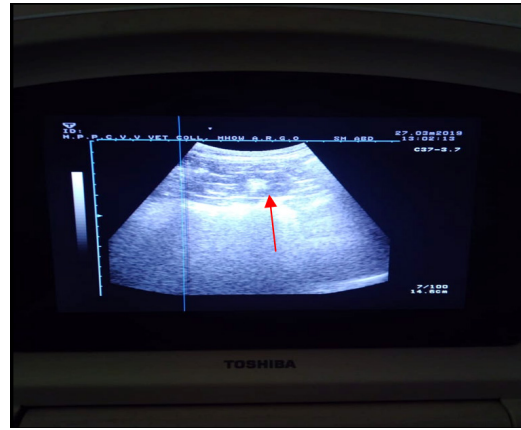


Fig. 4: Ultrasonographic changes in kidney of a dog suffered from Babesiosis (Unclear demarcation between cortex and medulla in babesia positive dog)

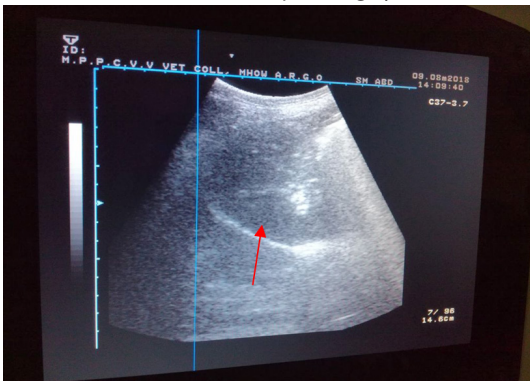


Fig. 2: Ultrasonographic changes in Spleen of a dog suffered from Babesiosis (Spleen having hyperechoic and anechoic areas)

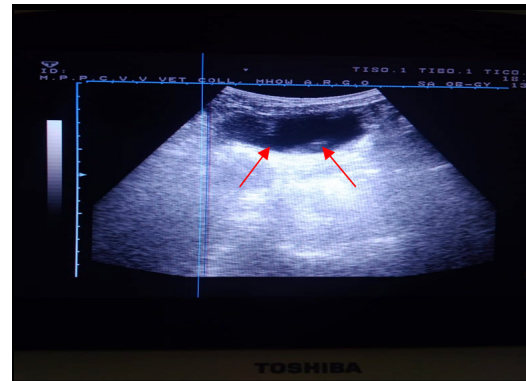


Fig. 3: Ultrasonographic changes in Urinary bladder of a dog suffered from Babesiosis (Hyperechoic bladder wall with double wall appearance suggestive of cystitis)

discharge (6, 16.66%) dyspnoea (6, 16.66%), dribbling of urine (5, 13.88%) and haemoglobinuria (5, 13.88%).

Pale mucous membranes were due to marked anaemia, epistaxis and petechial hemorrhage might be due to direct mechanical disruption caused by parasite as it leaves red blood cells, intravascular hemolysis and immune-mediated or non-immune mediated destruction of red blood cells.

Ultrasonographic studies

Abdominal sonography of 12 babesia positive dogs revealed that most affected organs were spleen, liver, kidneys, gall bladder and urinary bladder with ascites. In 7 out of 12 dogs hepatomegaly was observed with architectural changes, hypo-echoic changes in the parenchyma and the contour of liver, (Fig 1). Nine dogs showed Splenomegaly with disturbed architecture and multiple lesions, with hyperechoic and anechoic areas (Fig. 2). The wall of urinary bladder was hyperechoic in texture with double wall appearance in five dogs and the thickening of bladder wall was suggestive of cystitis (Fig.3). The gall bladder was distended in three dogs. The changes in the kidney were not clear and no demarcation was noticed between cortex and medulla in four babesia positive dogs (Fig.4). Adaszek *et al.* (2009) also observed similar findings. Sakuma *et al.* (1987) reported hypo echogenicity of liver, gall bladder distension in mixed

infection (Babesiosis and Ehrlichiosis). Hepato-splenomegaly might be due to multiplication of organism within circulating mononuclear cells and mononuclear phagocytic tissues of liver, spleen and lymph node. The sonographic change in gall bladder included distention with presence of sludge/clear bile which may be due to anorexia.

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