

New therapeutic protocol for canine babesiosis: a case report

Abstract

Canine babesiosis is typically characterized by hemolytic anemia, thrombocytopenia, fever, and splenomegaly. A male Labrador aged three years eight months was presented to the veterinary clinic with a history of brownish urination, anorexia and lethargy since one week. Clinical examination revealed high temperature (105.7°F), pale mucous membrane and splenomegaly. Haematology revealed anaemia and thrombocytopenia (Hb- 7.7g/dl; Platelet count- 86,000/μl). *B. gibsoni* (++) was evidenced in blood smear. Treatment was initiated with a combination therapy of Clindamycin @ 25mg/kg PO q 12h, Metronidazole @ 15mg/kg PO q 12h and Doxycycline @ 5mg/kg PO q 12h for 10days. There was no adverse reactions and the dog showed clinical and haematological improvement from 4th day of treatment onwards and recovered uneventfully by the end of therapeutic protocol.

Keywords: *B. gibsoni*, canine, clindamycin, metronidazole, doxycycline, combination therapy, haematology, biochemistry

Volume 3 Issue 3 - 2016

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Received: May 17, 2016 | **Published:** June 06, 2016

Abbreviations: Hb, haemoglobin; TLC, total leucocyte count; SGOT, serum glutamic oxaloacetic transaminase; SGPT, serum glutamic-pyruvic transaminase; ALP, alkaline phosphatase; @, at sign; SC, subcutaneous; IM, intramuscular

Introduction

Babesiosis is an important disease of domestic dogs and has been attributed to infection with either *Babesia canis* or *B. gibsoni*, based on parasite size and the geographic location in which the infection was acquired. It is diagnostically important to determine the species that causes canine babesiosis, since the virulence, prognosis, and response to anti babesial drugs may be different for each organism.¹ *Babesia gibsoni* was first recognized in India in 1910.² There are at least three distinct isolates of *B. gibsoni* that are morphologically identical: one from Asia, one from California, and a third from Europe. The Asian isolate is the original organism found in India and is considered *Babesia gibsoni sensu stricto*.³

Case presentation

A male Labrador aged three years eight months was presented with a history of brownish urination, anorexia and lethargy since one week. Clinical examination revealed high temperature (105.7°F), pale mucous membrane and spleenomegaly. Blood was collected and subjected to routine hematology and biochemistry. Peripheral smear study revealed presence of *B. gibsoni* (++) in the RBCs. Based on clinical signs, hematological and biochemical report case was suspected for Babesiosis and blood smear confirmed it as *B. gibsoni* infection.

The animal was treated with Clindamycin @ 25mg/kg PO q 12h, Metronidazole @ 15mg/kg PO q 12h and Doxycycline @ 5mg/kg PO q 12h for 10days and was advised for follow up after 3days. On fourth day of treatment temperature was normal (101.8°F), parasitemia was reduced to less than 10%, there was clinical and hematological improvement. Owner was further advised to come after four days for blood test (Table 1).

Table I Haematological and Biochemical findings in affected dog

Parameters	Day 1	Day 4	Day 7
Hb(g/dl)	7.7	8.5	10.1
Platelet count(lakhs/μl)	0.86	0.88	1.2
TLC(10 ³ /μl)	18.3	16.2	16.3
Neutrophils(%)	66	63	60
Eosinophils(%)	11	8	14
Lymphocytes(%)	22	29	25
Monocytes(%)	1	-	1
Creatinine(mg/dl)	0.9	-	1.3
SGOT(IU/L)	49	-	49
SGPT(IU/L)	23	-	45
ALP(IU/L)	120	-	352
Total bilirubin(mg/dl)	1.8	1.8	0.6
Direct bilirubin(mg/dl)	0.8	0.9	0.2
Total protein(g/dl)	6.6	-	7
Albumin(g/dl)	2.4	-	2.6
Globulin(g/dl)	4.2	-	4.4
Albumin: Globulin ratio	0.57:1	-	0.59:1

Discussion

Conventional therapy for canine Babesiosis includes 2 doses of Inj. Imidocarb dipropionate @ 5mg/kg SC or IM 2 weeks apart. It reduces morbidity and mortality but ineffective for clearance of *B. gibsoni*. Other drug used to treat Babesiosis is single injection of Diminazene aceturate @ 3.5mg/kg SC or IM, but this is potentially dangerous and shows a propensity to develop severe cerebral toxicity with classic cerebellar sulci haemorrhages. Moreover, *B. gibsoni* are

very difficult to clear with such conventional therapy and dogs usually become chronic carriers or present with recurrent episodes of acute babesiosis.⁴

The first treatment that has been shown to be effective against *B. Gibsoni* is a combination of atovaquone and azithromycin.⁵ Unfortunately Atovaquone is not available in India and it's expensive for import. Moreover Possible Emergence of Drug-Resistant Variants of *B. Gibsoni* in clinical cases treated with Atovaquone and Azithromycin has also been reported.⁶

In the present case, combination of Clindamycin, Metronidazole and Doxycycline gradually reduced parasitemia levels and Clindamycin treatment reduced the clinical symptoms characteristic of *Babesia* infection, including anemia, anorexia, and listlessness also subsided. The effectiveness of clindamycin for treatment of *B. Gibsoni* infection has also been reported by several workers.^{7,8} But it's been suggested that clindamycin might not eliminate parasites rapidly from the peripheral blood but damages it which might stimulate humoral and cellular immunity against *Babesia* infection and results in improvement in clinical condition.⁹ So, a Combination therapy of clindamycin (CLDM), metronidazole (MNZ), and doxycycline (DOXY) as an efficacious alternative treatment strategy for *B. Gibsoni* infection with no adverse effects has been suggested.¹⁰

Thus, present clinical case concluded that a combination therapy of Clindamycin @ 25mg/kg, Metronidazole @ 15mg/kg and Doxycycline @ 5mg/kg for 10days is effective against *B. Gibsoni* with no adverse reactions and the dog showed uneventful recovery.

Acknowledgements

None.

Conflict of interest

Author declares that there is no conflict of interest.

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