

Ascites in a Labrador retriever puppy with *Babesiosis* – A case report

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Abstract

A 2-month-old male Labrador puppy was presented to Referral Veterinary Polyclinic-Teaching Veterinary Clinical Complex, ICAR- Indian Veterinary Research Institute with a history of inappetence and bilaterally distended abdomen for a period of 15 days. On physical examination, generalized weakness, pale mucous membrane, pyrexia, tachycardia, tachypnea and fluid thrill on the abdomen were noticed. Severe anemia, reduced hematocrit, neutrophilic leukocytosis, hypoproteinemia, hypoalbuminemia and elevated liver enzymes were noticed in haemato-biochemical examination. *Babesia* sp. was detected in blood smear examination. Ultrasound examination revealed hepatomegaly and ascites. Based on these findings, the case was diagnosed as ascites due to *Babesiosis*. Forty ml of whole blood was transfused and the animal was treated with Inj. Dextrose, Inj. Imidocarb, Inj. Furosemide for 2 days. Case was discharged with the advice of continuing the treatment with triple drug therapy (doxycycline, clindamycin and metronidazole) for 10 days, hepato-protectant (Susp. Silybon®), haematinic (Syp. Hemobest®) and diuretics (Spironolactone and furosemide combination) orally for 30 days at home and regular follow up. The animal showed uneventful recovery following treatment.

Keywords: *Babesia* sp, Ascites, Imidocarb and Triple drug therapy

Babesiosis is a fatal, infectious, tick-borne protozoal disease caused by haemotropic protozoa of the genus *Babesia* respectively (Ghosh *et al.*, 2020; Gonde *et al.*, 2014). *Babesiosis* is clinically manifested anorexia, dullness, vomiting, weight loss, systemic inflammatory response syndrome, multi organ failure and ascites (Ghosh *et al.*, 2020). Ascites is defined as the pathological accumulation of fluid in the abdominal cavity and the etiology are multi-factorial in nature. The present case describes about ascites in a labrador pup with babesiosis.

Case History and Observation

A 2-month-old male Labrador puppy weighing around 2 kg was presented with the history of inappetence and bilaterally distended abdomen for a period of 15 days. The puppy was dewormed once with fenbendazole suspension and not vaccinated. On physical and clinical examination, pale conjunctival and buccal mucous membrane, dullness, pyrexia, tachycardia and tachypnoea were noticed. On tactile percussion of the abdomen, fluid thrill was noticed. Blood sample was taken for haematological and biochemical examination. Peripheral blood smear made from the ear vein for haemo-protozoal examination. The animal

was subjected to electrocardiographic, radiographic and ultrasonographic examination. Ascitic fluid was taken for further analysis.

Haematological examination revealed severe anemia (Hb – 4.4 g/dl, PCV- 13.2 %, TLC- $18.6 \times 10^3 / \mu\text{l}$, TEC – $2.09 \times 10^6 / \mu\text{l}$, N-72/ μl , L-17/ μl , M- 9/ μl) along with severe thrombocytopenia (PLT- $76 \times 10^3 / \mu\text{l}$). Blood smear examination was found to be positive for *Babesia gibsoni*. Serum biochemistry revealed elevated ALT (150.75 IU/L), AST (183.64 IU/L), decreased total protein (2.09 g/dl), Albumin (0.74 g/dl), normal serum creatinine (1.74 mg/dl) and blood urea nitrogen (7.5 mg/dl). Faecal examination was negative for endoparasites. Radiographic examination revealed ground glass appearance indicating the presence of free fluid in the abdominal cavity. Ultrasonographic examination showed the presence of clear anechoic fluid in the abdominal cavity and hepatomegaly. Electrocardiographic examination showed tachycardia and normal duration and amplitude of PQRST waves. Ascitic fluid examination revealed increased total protein (1.75g/dl) and albumin (0.33g/dl). Based on history and clinical examination, the presented case was diagnosed as ascites in a Labrador puppy with *Babesiosis*.

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Fig 1: Trophozoites in the erythrocyte of thin blood smear under 100 X, oil immersion (Leishman stain)



Fig 2: X-ray of the pup revealed ground glass appearance in the abdominal cavity indicating ascites



Fig 3: ECG pattern shows tachycardia with 120 bpm and normal PQRST waves



Fig 4: Ultrasound of the liver showing hyper-echogenicity with anechoic area around the liver denoting the presence of free fluid in the abdominal cavity

Treatment and Discussion

Forty ml of blood transfusion was done. The animal was treated with Inj. Imidocarb propionate (@ 6.6 mg/kg S/C, twice), atropine sulphate (@ 0.02 mg/kg S/C, SID), furosemide (@ 2 mg/kg I/M, SID) and dextrose (10 % @ 10 ml/kg I/V) for 2 days and a combination of furosemide and spironolactone (@ 25 mg BID, P.O) for 5 days. Supportive treatment with Hemobest® (Iron, L- methyl folate, B complex vitamins

and copper @ ½ tsp P.O twice), Silybon® (silymarin @ ½ tsp PO BID) for 30 days. Even after treatment with imidocarb, blood smear revealed babesia organism. Triple drug therapy consisting of doxycycline (@ 5mg/kg P.O, BID,) clindamycin (@ 25 mg/kg P.O, BID) and metronidazole (@ 10 mg/kg P.O, BID) was given for 10 days. After 10 days of treatment, blood smear was negative for *Babesia organism*. Owner was advised to give egg white for a month. Following the therapeutic management, animal showed uneventful recovery.

Table 1: Haematological parameters and Biochemical values

Parameters	Before treatment	After treatment (20 days)	Reference range (Kahn, 2005)
Hb (g/dl)	4.4	10.6	12-18
PCV (%)	13.2	30.8	35-55
TEC (10 ⁶ / µl)	2.09	5.25	5.5-8.5
TLC (10 ³ / µl)	18.6	11.2	6-17
Neutrophils (%)	78	65	60-70
Lymphocytes (%)	14	35	20-30
Monocytes (%)	8	-	1-10
Platelets (10 ³ / µl)	76	3.18	1-5
Total protein (g/dl)	2.09	3.8	5.5-7.5
Albumin (g/dl)	0.74	1.5	2.6-4
ALT (U/L)	150.75	95.55	8.2-57
AST (U/L)	183.64	60.26	55-105
BUN (mg/dl)	7.5	8.85	8.8-26
Creatinine(mg/dl)	1.74	0.45	0.5-1.6

Before therapy



After therapy



Imidocarb dipropionate helps in reducing the morbidity and mortality rate of affected animal but it unable to eliminate the *B.gibsoni* from the body (Nandini *et al.*, 2016). Combination of doxycycline-enrofloxacin-metronidazole was 83.3 % effective in treating Babesiosis (Lin and Huang, 2010). As an alternative, drug combinations of doxycycline-clindamycin-metronidazole was given by (Sharma *et al.*, 2016; Nandini *et al.*, 2016; Ponnu Swamy *et al.*, 2019), helps in treating *B.gibsoni*. Therefore, a combination of doxycycline-clindamycin-metronidazole was prescribed in this case and recovery was noticed after 10 days. Blood transfusion was highly effective in the severe case of Babesiosis and it is considered as a lifesaving therapy in the present case. Similar reports were mentioned by (Kanwarpal *et al.*, 2020). Earlier diagnosis of *Babesia gibsoni* mitigates the mortality and aids in improving the animal condition.

Conflict of interest

The author declares no conflict of interest in publishing this paper.

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