

Therapeutic Management of Babesiosis in German Shepherd Dog

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Abstract

A male German Shepherd dog was presented to the teaching veterinary clinical complex with history of unilateral epistaxis since last 10 days with anorexia, heavy tick infestation, melena and fever. On clinical examination, conjunctival mucous membrane was pale suggesting severe anemia. Hematological panel revealed anemia, thrombocytopenia and presence of *Babesia bigemina*. Biochemical panel was normal. Dog was treated with diaminazene acetate @ 3.5mg/kg once and supportive medications. After 2 days of treatment, blood transfusion was performed.

Dog was discharged after arrest of epistaxis and kept on Tab Doxycycline @ 5mg/kg q12hr for 21 days. After 21 days, blood smear was performed which was negative.

Keywords: Canine, *Babesia bigemina*, Epistaxis.

Introduction

A male German Shepherd of 1.5 year was presented to teaching veterinary clinical complex with a history of unilateral epistaxis (Fig. 1) since last 10 days with anorexia,

heavy tick infestation, melena and fever. Clinical examination revealed pale conjunctival mucous membrane, pyrexia (105°F), lymphadenopathy and increased blood clotting time. Blood sample was collected for complete blood count, kidney function test and liver function test (Table 1 and table 2).

Material and Methods

Blood smear was prepared and examined under microscope for detection of hemoparasitic infection. Hematological profile showed anemia, thrombocytopenia and leucocytosis. Biochemical analysis was normal. Blood smear examination revealed babesia. Routine Fecal examination was performed to rule out possibility of gastrointestinal worms.

The dog was treated Inj. diaminazene acetate @ 3.5mg/kg (STAT), Inj. oxytetracycline @ 10mg/kg q12hr IV. Dog was also treated with Inj. Pantoprazole @ 1mg/kg q12hr, Inj. Novalgin @ 1ml IV (STAT), Inj. Botropase 1ml IV, Inj. Iron dextran and Inj. B-complex and supportive fluid therapy i.e. Inj. DNS. Adrenalin drops were instilled intra-nasally to arrest epistaxis. It was also advised to give Syp. Sparacid (Sucralfate) 5ml b.i.d to correct melena which could be because of gastric ulceration. Revolution (Selamectin) spot was applied topically to get rid of tick infestation.



Fig. 1: Unilateral Epistaxis in German Shepherd Dog

Table 1
Showing hematological profile

S.N.	Parameter	Value
1	Hemoglobin (Hb, gm%)	5.7
2	Packed Cell Volume (PCV, %)	19.9
3	Total Erythrocyte Count (TEC, $10^6/\text{cmm}$)	2.9
4	Total Leucocyte Count (TLC, $10^3/\text{cmm}$)	18
5	Mean Corpuscular Volume (MCV, fl)	68.62
6	Mean Corpuscular Hemoglobin (MCH, pg)	23.10
7	Mean Corpuscular Hemoglobin Concentration (MCHC, %)	33.67
8	Platelets (PLT, lacks/cu mm)	22000

Table 2
Showing biochemical profile of dog

S.N.	Parameter	Value
1	Blood Urea Nitrogen (BUN, mg/dl)	15.4
2	Creatinine (mg/dl)	1.0
3	Total Bilirubin (mg/dl)	0.3
4	Direct Bilirubin (mg/dl)	0.1
5	Indirect Bilirubin (mg/dl)	0.2
6	Alkaline Phosphatase (ALP, U/L)	28
7	Aspartate transaminase (AST, IU/L)	45
8	Alanine transaminase (ALT, IU/L)	25
9	Total Protein (gm/dl)	5.1
10	Albumin (gm/dl)	2.6
11	Globulin (gm/dl)	2.5

Even after 2 days of treatment intermittent, epistaxis was seen, so after due consent blood transfusion@ 15ml/kg intravenously was performed. Major and minor cross-matching was done before blood transfusion to avoid transfusion reaction. After treatment, epistaxis was stopped and dog was shifted on Tab. Doxycycline@ 5mg/kg b.i.d P.O for next 21 days along with sparacid (Sucralfate) 5ml b.i.d for next 5 days. Dog was found to be healthy after 21 days of treatment and microscopic blood parasite examination was negative.

Results and Discussion

Many researchers carried out prevalence studies on canine babesiosis and reported prevalence in different regions of India. In Delhi incidence of canine babesiosis was found to be 30.80%.⁸ Prevalence in Assam was 22%³ and Uttar Pradesh was 9%.⁴

Canine babesiosis is tick born infection with most frequent clinical signs as anorexia, lethargic condition, fever, anaemia, generalized lymphadenopathy, splenomegaly, hepatomegaly and jaundice.¹ Hemolytic anemia caused by babesiosis could be multifactorial including immune-mediated destruction, direct parasitic injury and subsequent

oxidative stress. Consumptive process or immune mediated response leads to thrombocytopenia.

Anti-platelet antibodies were found in dogs infected with babesiosis, ehrlichiosis and dirofilariasis.⁶ These anti-platelet antibodies bind to platelets which may lead to immune mediated destruction of platelets. It is assumed that epistaxis is because of immune mediated thrombocytopenia, the most common cause of abnormal primary haemostatic disorder in dogs.⁷

Due to lower incidence rate and sensitivity, it is often difficult to diagnose canine babesiosis on routine microscopic blood smear examination.⁹ Difficulties in detection and differentiation of sub-species can be overcome by molecular techniques (PCR) which are easily available and sensitive also. Biological samples should be subjected to molecular detection before initiation of chemotherapy.

Based on history, clinical examination and hemato-biochemistry, dog was diagnosed with babesiosis. Imidocarb dipropionate (6.6 mg/kg IM once) or diaminazene aceturate (3.5–7 mg/kg SC once) is effective against babesiosis. Diaminazene aceturate @ 3.5-7mg/kg is effective against

babesiosis. Use of immunosuppressants or glucocorticoids for immune mediated hemolysis is controversial. Doxycycline@ 5mg/kg q12hr has been associated with clearance of babesia.

Conclusion

Dogs recovered from Babesiosis remain in subclinically infected state and serve as carrier for further transmission of disease.⁵ Thus relapse can occur which was conveyed to owner for prompt detection of clinical signs. Effective prevention of babesiosis can be achieved by tick control program and regular cleaning and combing of dogs. Vaccine of *Babesia canis* is available in Europe which reduces severity, however it does not confer protection.

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