

Clinico – therapeutic aspects of Babesiosis in a white tigress (*Panthera tigris tigris*)

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Babesiosis, a hemoprotozoan a tick borne infection, caused by *Babesia* Sp., is a serious disease reported amongst domestic animals with clinical signs such as high fever, haemolytic crisis, hemoglobinuria, jaundice, anemia and death. Although Babesiosis is commonly reported in bovines with economic losses, scanty literature is available regarding its occurrence, clinico-therapeutic aspects of wild and captive wild animals infested with babesiosis. Only few reports are available on occurrence of babesiosis in big cats (lion and tigers) with successful therapeutic management. (Khurana, 1969; Sinha, 2000). *Babesia cati*, *B. felis* and *B. panthera* are known to infect wild cats. (Swarup *et al.*, 2009). The present article reports the clinico-pathological aspects of babesiosis with successful therapeutic management in a female white tigress.

Case History

A female white tigress (*Panthera tigris tigris*) named Gypsi of 13 years old was found infested with babesiosis on peripheral blood smear examination after reporting the illness of 3 days. The tigress showed high fever (103°F) with partial anorexia and dullness. The animal appeared disturbed and scared with behavioral changes like biting inanimate objects, vacant and staring gaze and vomiting. Dietary changes included selective feeding (Chicken instead of beef). The other clinical signs observed in babesiosis like jaundice and hemoglobinuria were not observed till day 4.

The complete blood count was performed four times, on days 2, 4, 8 and 15 during the course of illness. The intra-erythrocytic organisms of *Babesia* Sp., either single or double, were detected on day 4 of infection. Marked hematological alterations were ALSO noted on day 4. The hemoglobin (gm/dl) levels decreased from 14.8 (day 2) to 11.8 (day 4) along with reduction in hematocrit (%) from 39 (day 2) to 35 (day 4) indicative of progression towards anemic status. Similar reduction were noted in Total Erythrocyte Count (millions/cmm) from 7.2 (day 2) to 6.18 (day 4). A notable increase in Total Leukocyte Count (thousands/cmm) from 16,400 (on day 2) to 19,500 (on day 4) was reported with neutrophilia (79%) and eosinophilia (5%). Detail hematological report showed in Table. 1. Marked thrombocytosis (on smear) with clumping and presence of large

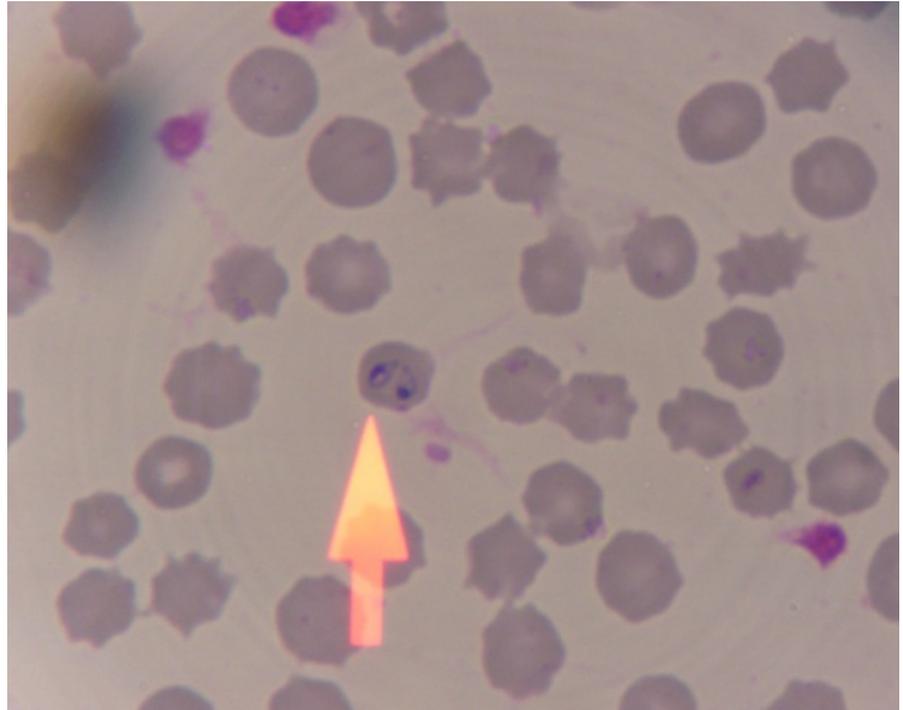


Fig. 1 RBT (Gypsi) blood smear showing *Babesia* sp. in RBC (Double)

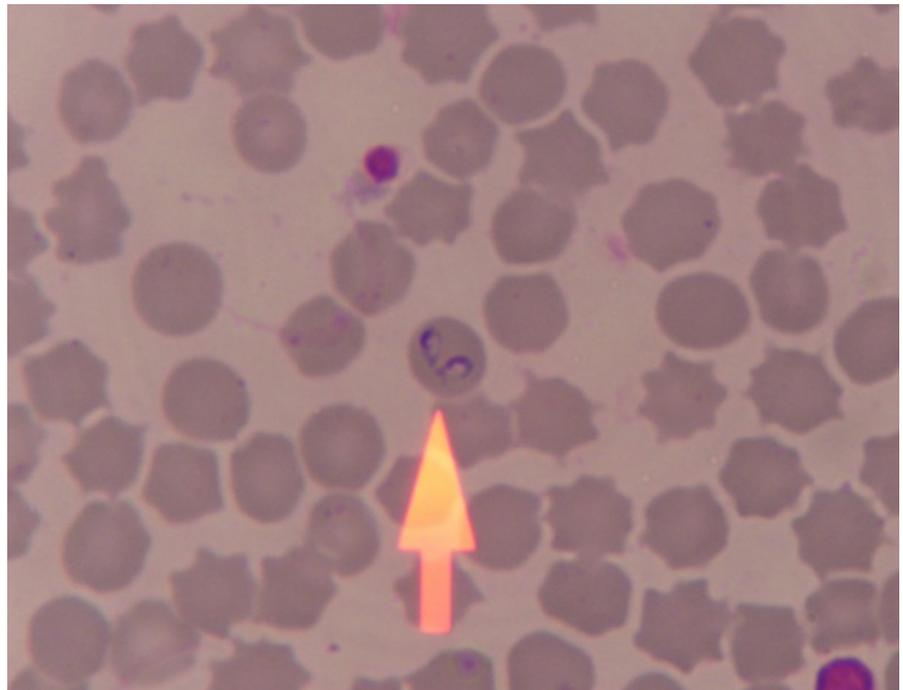


Fig. 2 RBT (Gypsi) blood smear showing *Babesia* sp. in RBC (Double)

granular changes was also observed on day 2 and 4 of infection.

The biochemical investigations on day 4 showed elevated levels of liver function tests like Total Bilirubin (2.21 mg/dl), SGPT (228 IU/L), SGOT (158 IU/L) and Alkaline Phosphatase (74 IU/L) with decreased levels of Albumin (2.8 gm/dl) and normal total protein

(6.45 gm/dl). The increased levels were attributed to hepatic dysfunction accompanied with anorexia and muscular degeneration. Kidney

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Table.1 : Blood, Biochemical analysis of White tigress Gypsi

Parameter	Unit	Value			
		2nd Day	4th Day	8th Day	15th Day
Hb	gm /dl	14.9	11.8	12.6	12
PCV	%	39	35	34	40
WBC	X 10 ³ /ul	16400	19500	17200	12600
RBC	X 10 ⁶ /ul	7.2	6.18	6.8	7
ESR	mm/hr	9	20	35	----
Platelet	X 10 ³ /ul				
Differential Count					
Neutrophils	%	79		76	73
Bands		12	70	9	2
Mature neutrophils		63		65	71
Lymphocytes	%	14	25	15	23
Monocytes	%	2	2	3	2
Eosinophils	%	5	3	6	2
Platelet			41		52
Liver function test					
Triglycerides	mg/dl				21.8
Total			2.21	0.305	0.26
SGOT	IU/L		158	33.68	23.36
SGPT	IU/L		228	58.47	43.12
Sr. Alkaline	IU/L		74	16.51	23.33
Total protein	gm%		6.45	5.71	6.21
Globulin	gm%			1.22	2.2
Albumin	gm%		28	3.22	3.44
Kidney function test					
BUN	mgs%			10.13	17.26
Creatinine	mgs%			2.02	1.89

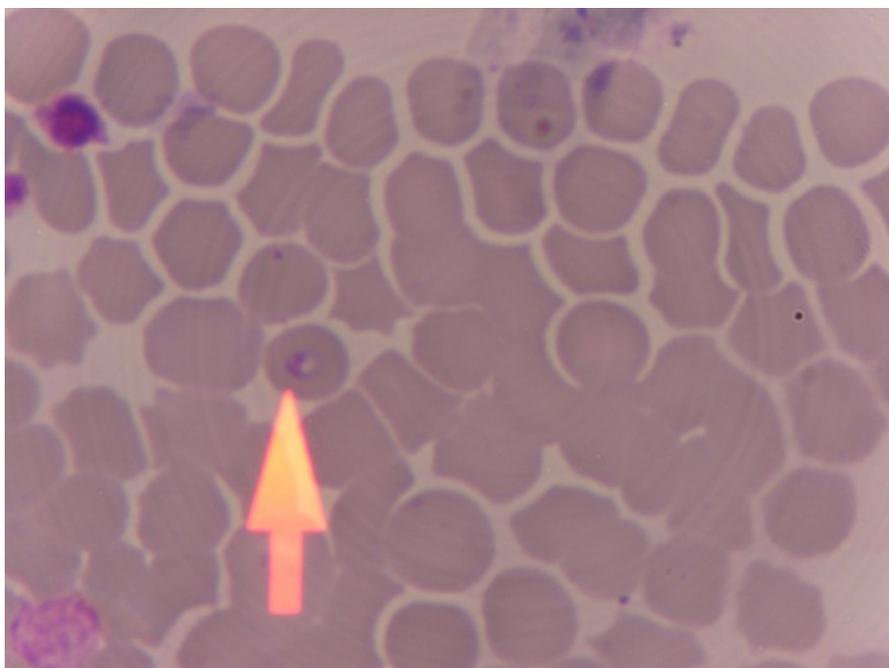


Fig. 3 RBT (Gypsi) blood smear showing Babesia sp. in RBC (Single).

function tests showed A VERY mild elevation of serum creatinine (2.02 mg/dl) and BUN (10.13 mg/dl) within referral range. (Table. 1.) Similar observations were reported by Kinge *et. al.*, (2010) with decreased levels of total protein and albumin indicative of

mild liver damage in acute phase of Babesiosis in a lioness.

Use of commonly available drug, Diaminazine aceturate, is contraindicated in wild felines which may lead into fatal damage to kidney,

liver and brain (Swarup *et. al.*, 2009). Similarly Primaquine, having low lethal margin with smaller dose and route of administration (as *per obs.*) was not considered for therapeutics. Hence, Imidocarb (Inj. Imizol*) @ 2 mg/kg was used as the drug of choice for treatment in this case, on 4th day and was repeated after a week. Similar therapeutic dose has been reported by Arora (1994). The treatment was supported with administration of 10 % Dextrose normal saline and Vit. B-complex (Inj. Livobex*).

The blood examination on day 8 and 15 showed absence of organisms from blood with restoration of blood values to referral range with normal food intake and absence of clinical signs with normal behavior.

*Inj. Livobex – TTK Healthcare Ltd., Vijaywada, INDIA.

*Inj. Imizol -Schering-Plough Animal Health Corp., Union, NJ 07083, Germany.

References:

Khurana, D.D. (1969). Babesiosis in a White Tiger - A Case Report. *Orissa Veterinary Journal*. 4: 52–53.

Arora, B.M. (1994). Protozoan Diseases-Babesiosis, Wildlife Diseases in India, 1st ed. Printed at Associated offset Press, New Delhi, 100 pp.

Sinha, K.P., M. Sinha, N.K. Pankaj & Y.K. Singh (2000). Babesiosis in a Tigress. *Zoos' Print Journal*. 15(8): 327.

Upadhye, S.V & V.M. Dhoot (2000). Sudden death of a Leopard (*Panthera pardus*) due to Babesiosis. *Zoos' Print Journal*. 15(8):327.

Swarup, D., A. Das, M. Saini, P. Kumar, A.K. Sharma & A. Pal (2009). Standards Guidelines and Protocol on diseases diagnosis and care of wild animals in Indian Zoos, Published by IVRI and CZA, New Delhi.

Kinge, Y.A, D.B. Sarode & N.P. Dakshinkar (2010). Babesiosis in a Lioness (*Panthera leo*). *Veterinary World*. 3(3):133.