

Acknowledgement

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CASE REPORT

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HAEMATOLOGY AND SERUM CHEMISTRY OF INDIAN WOLF (*CANIS LUPUS PALLIPUS*)

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Introduction

According to the Conservation Assessment, the Indian Wolf (*Canis lupus pallipus*) is a near threatened subspecies. The Sakkarbaug Zoo has established a captive-breeding programme since last few years. Successful breeding of this species in captivity at the zoo is reflected by the many births. At present, the zoo has 14 individuals, which might be one of the largest captive populations of this subspecies in the world. Biological parameters are considered useful aids in clinical diagnosis and there is paucity of such information. Therefore, the study was undertaken to estimate the normal ranges of a variety of haematological and serum chemistry values in healthy individuals of this species.

Materials and Methods

Fourteen apparently healthy Indian Wolves housed at Sakkarbaug Zoo, Junagadh, Gujarat were utilised for this study. Of these animals, five were pups (3 males and 2 females) about five months of age and nine were adults (5 males and 4 females). Except for one male, which was acquired from the wild, the rest were born in captivity.

These animals were housed in three groups. Group one com-

posed of a breeding pair with five pups. Group two composed of four adult animals (3 males and 1 female) and group three composed of three adult animals (1 male and 2 females). Each group was housed in separate enclosures having an outdoor area of about 300 ft², covered from all four sides with a chain-linked fence. Additionally, every enclosure had an area of about 200 ft² as night house or feeding house. These animals were maintained on a natural light and dark cycle and fed with buffalo meat comprising soft bones (15%). Food was supplemented adequately with necessary vitamins and minerals. Water was made available to all animals round the clock. Animals were physically examined to determine their health condition. Approximately 10 ml of blood was obtained from femoral vein with a sterilised 20-gauge needle after restraining the animal in a squeeze cage. Two millilitre of blood was deposited into a sterile tube containing di-potassium ethylenediamine tetra acetate (EDTA) and rest was transferred to centrifuge tube for serum separation. The EDTA tubes were agitated for 15-20 seconds. Haematological evaluations were performed on whole blood. Serum was separated within 30 minutes of sample collection by centrifugation, and serum chemistry evaluations were performed within six hours of sample collection. Blood smears were stained with field A and B stain and differential counts (based on a count of 100 cells) were made manually under microscope. Haemoglobin estimation was done by Sahil's acid hematin method

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Table 1. Haematological data for 14 Indian Wolves

Blood measure	Mean	SD	Range
Haemoglobin (g/dl)	13.51	1.23	10.5-15
ESR mm/hr	2.86	1.06	1-5
Leukocytes (WBC) (10 ³ /ul)	14028	17775	10200-18200
Neutrophils (10 ³ /ul)% of WBC	63.14	3.85	58-71
Lymphocytes (10 ³ /ul)% of WBC	33.71	3.22	28-39
Monocytes (10 ³ /ul)% of WBC	1.07	0.5	0-2
Eosinophils (10 ³ /ul)% of WBC	2.07	0.79	0-4
Basophils (10 ³ /ul)% of WBC	0	0	0

Table 2. Serum chemistry values for 14 Indian Wolves

Serum measure	Mean	SD	Range
Calcium (mg/dl)	6.533	0.647	5.58-7.94
Phosphorus (mg/dl)	4.86	0.357	4-5.32
Glucose (mg/dl)	71.44	9.398	58.2-91
BUN (mg/dl)	28.19	7.966	16-41
Cholesterol (mg/dl)	173.44	16.45	138-198
Total protein (g/dl)	6.01	0.394	5.07-6.49
Albumin (g/dl)	3.287	0.18	2.92-3.53
Globulin (g/dl)	2.724	0.406	2.03-3.16
SGPT (mg/dl)	40.29	11.34	24-64

as described by Wintrobe (1967). White blood cell counts were performed using a standard hemocytometer method as described by Schalm (1967). Erythrocyte sedimentation rate was determined using Westergreen method. Total Protein (Buiuret & Dumas method), Albumin-Globulin (Buiuret and Dumas method), Urea (Dam method), Glucose (God/pod method), Cholesterol (Wybenga and Pileggi method), Serum Glutamate Transaminase (Reitman and Frankel method), Calcium (O.C.P.C. method), Phosphorus (Gommorri's method) and Blood Urea Nitrogen (Dam method) were determined using photoelectric colorimeter (Systronics, Ahmedabad) using diagnostic kits supplied by M/s Span Diagnostics Limited, Surat. Mean sample standard deviations, and ranges were calculated for all haematological and serum chemistry parameters.

Results and Discussion

The general haematological and serum chemistry mean value of healthy Indian Wolves regardless of their sex and age are presented in the tables 1 and 2. The haematological values (Table 1) observed in the Indian Wolf were consistent with those published previously for dogs by Sharma *et al.* (1996) and Kirk and Bistner (1995).

Similarly majority of serum chemistry values (Table 2) in the Indian wolf were within the range as previously reported by Sharma *et al.* (1996) and Kirk and Bistner (1995). Serum chemistry value for calcium was slightly lower than what is reported in dogs. The ratio of calcium to phosphorous should be between 1:1 to 2:1 and it was within the ranges in these animals.

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