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Case Report

Baseline Haematological Values in Captive Leopard Cats (*Prionailurus bengalensis*) and Jungle Cats (*Felis chaus*) Housed at North Bengal Wild Animals Park, Siliguri, India

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Abstract

Considering the significance of haematological analysis in ex-situ facilities like zoological parks, the present study compiles major haematological parameters in captive Leopard cats (Prionailurus bengalensis) and Jungle cats (Felis chaus) housed at North Bengal Wild Animals Park, Siliguri. Blood samples from clinically healthy individuals were collected between September 2024 and August 2025 and analysed for red cell, white cell and thrombocyte profiles. The reports were compiled, and the results showed a notable interspecific trend in the mean values of red cell indices, such as Mean Corpuscular Volume, and individual variations in differential counts in both species of animals. Sufficient thrombocytes were recorded in all the studied individuals. While the low sample size in this study limits the establishment of reference intervals, the baseline data documented may be helpful to healthcare professionals while managing these species in captivity.

Keywords: Haematology; Captivity; Leopard Cats; Jungle Cats and Clinical Assessments

Introduction

The evaluation of haematological values is important in monitoring the health of captive wild felids, often offering the basic initial clues for understanding their underlying physiological status [1]. Additionally, these parameters assist the health care professionals of zoological parks in making timely decisions for the management of the wild animals under human care. While normal blood values in domesticated and pet animals are adequately available [2], and numerous studies exist for megistic flagship species of big cat such as tigers, lions and leopards [3-7], published reports on the same for lesser cat species like Leopard cats (*Prionailurus bengalensis*) and Jungle cats (*Felis chaus*) remain scarce, or almost non-existent [1,8]. Thus, any addition to the current literature is vital. In this context, the present paper documents the baseline information on major haematological parameters in selected species of small cats, aiming to augment the existing database, which may also serve as a helpful reference for wildlife veterinarians.

Materials and Methods

About 4mL of blood samples from the in-house leopard cats and jungle cats housed at North Bengal Wild Animals Park (NBWAP), Siliguri, were collected between September 2024 and August 2025 for the routine blood screening of the animals in three instalments. The animals were physically restrained using a squeeze cage, and venipuncture was performed via the cephalic vein, using a sterile disposable 5 ml capacity plastic syringe attached with a 22-gauge hypodermic needle. The whole blood was placed in a K_3 EDTA vacutainer, labelled, and slowly agitated in a rotary motion so that the coated EDTA mixes well with the blood sample and prevents co-

agulation. The samples were brought to the laboratory at the veterinary hospital of the park for further analysis. Further, samples that were sent to a government institution for analysis were also compiled in this study for computing the descriptive statistics using IBM SPSS version 26. Ethical permission was not required, as the procedures were part of standard prophylactic measures taken up by the veterinary unit of the park. Furthermore, the animals were closely observed before and after the blood collection, and an effort was made to collect the samples in the shortest possible duration to minimise stress.

Results and Discussion

NBWAP presently houses four adult male leopard cats and three adult male jungle cats in its facility. In the current study, seven blood reports for the former and six for the latter were compiled and summarised in table 1. During the blood collection, the inspection of each individual for general health conditions, like alertness, body coat, gait, posture, and physical status [2] revealed that all the felines were apparently healthy.

Parameters	Units	Leopard Cat (N = 7; all adult males between 5 to 8 years of approximate age)			Jungle cat (N = 6; all adult males of age above 9 years)		
		Mean ± SE	Minimum	Maximum	Mean ± SE	Minimum	Maximum
Hemoglobin concentration	g/dL	15.90 ± 0.26	14.9	16.9	14.49 ± 0.71	12.2	16.3
Total Erythrocyte Count	10^6/µL	10.36 ± 0.41	8.76	11.47	7.67 ± 0.36	6.76	9.02
Hematocrit	%	52.38 ± 1.75	44.2	56.36	48.45 ± 1.89	41.6	53.2
Mean Corpuscular Volume (MCV)	fL	50.75 ± 0.88	47.3	54.2	63.13 ± 1.28	59	66.8
Mean Corpuscular Haemoglobin (MCH)	pg	15.41 ± 0.51	14.1	17.6	18.86 ± 0.38	17.6	20
Mean Corpuscular Haemoglobin Concentration (MCHC)	g/dl	30.50 ± 0.86	27.7	34.9	29.90 ± 0.40	28.9	31.5
Total Leukocyte Count	10^3/µL	8.85 ± 2.36	1.11	20.21	8.91 ± 3.31	1.05	17.68
Lymphocytes	%	58.97 ± 8.23	28.6	86.7	64.08 ± 6.05	47.8	82.7
Neutrophils	%	38.01 ± 8.70	8.1	69.9	32.36 ± 8.39	7.6	52.7
Monocytes	%	1.77 ± 0.39	0.4	2.9	2.43 ± 0.73	0.5	5.6
Eosinophils	%	0.67 ± 0.43	0	2.4	2.50 ± 1.18	0	6.5
Basophils	%	0.55 ± 0.34	0	2.2	0.36 ± 0.17	0	1
Thrombocytes	10^3/µL	309.42 ± 48.19	210	565	181.00 ± 34.25	85	297

Table 1: Baseline haematological parameters in captive Leopard cats (*Prionailurus bengalensis*; N = 7) and Jungle cats (*Felis chaus*; N = 6) housed at North Bengal Wild Animals Park, Siliguri, West Bengal, India.

Considering the red cell picture, the Mean ± SE value of haemoglobin concentration for leopard cats and jungle cats was 15.90 ± 0.26 g/dLand 14.49 ± 0.71 g/dL, respectively. These values were within or close to the reference range reported by other authors in wild felids [1,8]. The Total Erythrocyte Count for the two species were noted as 10.36 ± 0.41 ×10^6/µL and 7.67 ± 0.36 × 10^6/µL, whereas the hematocrit value recorded was 52.38 ± 1.75 % and 48.45 ± 1.89 %, respectively. These values were comparable to the earlier findings in the same or related species [1,2,10,11], although the hematocrit values recorded in our study were slightly on the higher range. These higher readings of haemoglobin concentration and hematocrit values may be attributed to the capturing stress, and subsequent release of catecholamines, resulting in stress-induced splenic contractions, causing a temporary increase in the circulating erythrocytes [12]. Besides this, NBWAP provides spacious enclosures that are enriched with numerous structural and

feed enrichments, allowing the felines to explore and encourage playful behaviour. The physical activities, along with other environmental factors, may potentially stimulate erythropoiesis, resulting in marginally elevated red cell values [13].

The red cell indices in leopard cats and jungle cats were recorded. The mean MCV value for leopard cats (50.75 ± 0.88 fL) was comparatively lower than that of jungle cats (63.13 ± 1.28 fL) in our study, whereas the mean values of MCH (15.41 ± 0.51 pg and 18.86 ± 0.38 pg) and MCHC (30.50 ± 0.86 g/dL and 29.90 ± 0.40 g/dL) were more or less comparable between the two species. In all cases, the values obtained were close to the reference range for European wild cats and domesticated cats [10,14,15], although our study reports higher mean MCV values compared to these reference species. The variations in MCV may be individual or species-specific, as it is a known fact that the size of the erythrocytes greatly influences the MCV readings [16]. However, no such comparative assessments were found in the literature, and the vicinity of these differences requires further investigation.

For the white cell profile, the Total Leucocyte Count was recorded as 8.85 ± 2.36 × 10^3/µL for leopard cats and 8.91 ± 3.31 × 10^3/µL for jungle cats, respectively. The Differential Count for both species showed mean lymphocyte values of 58.97 ± 8.23% and 64.08 ± 6.05%, neutrophil values of 38.01 ± 8.70% and 32.36 ± 8.39%, monocyte values of 1.77 ± 0.39% and 2.43 ± 0.73%, eosinophil values of 0.67 ± 0.43% and 2.50 ± 1.18%, and basophil values of 0.55 ± 0.34% and 0.36 ± 0.17%, respectively. In our study, remarkable individual-level variations in these leucocyte cell type readings were observed in both species of lesser cats. Some authors [17,18] have advocated that leukocytosis and neutrophilia may be attributed to the capturing stress, with leucocyte differential count showing maximum variability within the same species of the family Felidae [19]. The overall values obtained for the white cell profile in our study were comparable to the normal range for domesticated cats [14,15].

The mean value of platelets or thrombocytes recorded for leopard cats and jungle cats was 309.42 ± 48.19 × 10^3/µL and 181.00 ± 34.25 × 10^3/µL, respectively. These values fall under the reference range given by [1] in other feline species.

Conclusion

In conclusion, although the low sample size in this study limits the authors from establishing the reference intervals for the species, the results reported in this paper may provide supportive information when evaluating the health status of leopard cats and jungle cats under clinical settings within zoological parks and rescue centres, as well as for reviewing diagnosis, prognosis and overall well being of the captive or wild populations, besides forming an interal part of disease survellence.

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