

HAEMATOLOGICAL PROFILE OF BUFFALOES SUFFERING FROM FOREIGN BODY SYNDROME

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ABSTRACT

The thirty buffaloes suffering from foreign body syndrome and six healthy control animals were sampled to study changes in blood profile. The decrease in Hb level was more significant in DH cases (17%) as compared to TRP (8%) affected animals. PCV values showed a significant drop in FBS affected animals which were more drastic in DH (14%) than TRP (8%), whereas TEC, MCH, MCHC and MCV values did not differ significantly in diseased buffaloes as compared to normal healthy animals. The leucogram revealed that buffaloes suffering from FBS had leucocytosis along with neutrophilia and lymphopenia. The alterations in leucogram were more marked in DH affected subgroup as compared to TRP subgroup.

Key words: Buffalo, haematological profile, foreign body syndrome

Foreign body syndrome is usually associated with changes in hemogram of the affected animals which are very useful indicator for the diagnosis in buffaloes (Kaur and Singh, 1994). Complete blood count (CBC) in suspected cases is of very high value in diagnosis and prognosis (Chander *et al.*, 1997). Total leucocytic count (TLC) and differential leucocytic count (DLC) not only help in diagnosis of clinicopathological conditions but also provide enough indication about their prognosis (Kaur and Singh, 1994).

MATERIALS AND METHOS

Two ml blood with EDTA was collected for haematological investigation from twenty buffaloes diagnosed at Teaching Veterinary Clinical Service Complex of University suffering with traumatic reticuloperitonitis (TRP) and ten buffaloes from diaphragmatic hernia (DH) and six apparently healthy buffaloes were sampled as control. Haemoglobin (Hb), haematocrit (PCV), total erythrocytic count (TEC), total leucocytic count (TLC), differential leucocytic count (DLC) were estimated as per standard methods. Mean corpuscular haemoglobin (MCH), mean corpuscular volume (MCV) and

mean corpuscular haemoglobin concentration (MCHC) were calculated as per conversion formulae described by Schalm *et al.* (1986). The means and standard errors were calculated as, per standard procedure. The data was subjected to Fischer's t-test (Snedecor and Cochran, 1967).

RESULTS AND DISCUSSION

The blood Hb concentration was significantly lower in buffaloes suffering from foreign body syndrome as compared to normal healthy buffaloes (Table 1) which is in consonance with the reported drop of Hb levels in cases of foreign body syndrome (Sethuraman *et al.*, 1979, Deshpande *et al.*, 1983, Kaur and Singh, 1994, Bisla and Singh, 2006) whereas no variation in Hb level was observed in bovines in response to ingestion of foreign body (Tagra *et al.*, 2002). Similarly out of 834 buffaloes suffering from foreign body syndrome, no significant change was observed in 90 per cent cases and only 10 per cent exhibited drop in Hb level (Krishnamurthy *et al.*, 1983). The drop in Hb values was more marked in cases of DH as compared to the animals suffering from TRP which is in contrast with the reported observation of higher Hb values in buffaloes suffering from

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Table 1

Haemogram and leucogram values in normal and foreign body syndrome affected animals

Groups	Hb (gm %)	PCV (%)	TEC ($\times 10^6/\text{mm}^3$)	MCV (fl)	MCHC (%)	MCH (pg)	TLC ($\times 10^3/\text{mm}^3$)	DLC (%)				
								N	L	M	E	B
Control	10.68 \pm 0.29	33.05 \pm 0.57	7.03 \pm 0.21	47.13 \pm 1.17	32.31 \pm 0.47	15.22 \pm 0.37	9.58 \pm 0.43	35.66 \pm 2.16	57.33 \pm 2.63	3.33 \pm 0.67	2.50 \pm 0.56	1.17 \pm 0.54
Diseased (FBS)	9.55 \pm 0.21	29.68 \pm 0.39	6.72 \pm 0.17	44.59 \pm 0.78	32.11 \pm 0.36	14.32 \pm 0.30	12.55 \pm 0.34	53.70 \pm 1.97	43.57 \pm 1.90	1.77 \pm 0.27	1.10 \pm 0.25	0.20 \pm 0.10
I. TRP	9.86 \pm 0.25	30.36 \pm 0.46	6.92 \pm 0.21	44.36 \pm 0.97	32.53 \pm 0.46	14.44 \pm 0.38	12.41 \pm 0.43	51.45 \pm 2.05	46.00 \pm 1.99	1.65 \pm 0.30	1.20 \pm 0.34	0.20 \pm 0.14
II. DH	8.87 \pm 0.28	28.32 \pm 0.54	6.35 \pm 0.26	45.04 \pm 1.37	31.27 \pm 0.48	14.09 \pm 0.51	14.03 \pm 0.39	58.20 \pm 4.07	38.60 \pm 3.75	2.00 \pm 0.54	1.90 \pm 0.35	0.20 \pm 0.13

Values with different superscripts differ significantly ($P < 0.01$)

DH as compared to TRP. The lower concentration of blood Hb in buffaloes suffering from DH as compared to TRP observed in the present study could be attributed to the severity and clinical stage of the disease, since DH is advanced sequelae of foreign body syndrome (Tyagi and Singh, 1993).

The haemocrit values has a significant fall in foreign body syndrome affected buffaloes as compared to the levels observed in normal healthy animals which is in accordance with the reported drop in PCV values in diseased animals suffering from foreign body syndrome (Sethuraman and Rathor, 1979, Deshpande *et al.*, 1983, Kaur and Singh, 1994, Bisla and Singh, 2006). Increase in haematocrit values in animals affected with foreign body syndrome has been reported (Behl *et al.*, 1997, Gokce *et al.*, 2004). However, several workers failed to find any variation between PCV values of diseased and healthy cattle (Kaushali *et al.*, 1981).

The TEC values did not differ significantly between foreign body syndrome affected and normal healthy buffaloes which corroborates the earlier findings of Kaur and Singh (1994) where approximately 70 per cent foreign body syndrome affected bovines had TEC values comparable to normal healthy animals. However, significantly higher TEC values in foreign body syndrome affected cases had been reported in cattle (Kaushali *et al.*, 1981). The observations of no variation of TEC values in foreign body syndrome affected buffaloes in the present study is contrary to the reported observations of significant drop in TEC values in 30 per cent cases of foreign body syndrome in bovines (Kaur and Singh, 1994).

No significant change was observed in diseased buffaloes in respect of MCV, MCHC and MCH values as compared to normal healthy animals which was in accordance to the observations of Krishnamurthy *et al.*, (1983) and Behl *et al.* (1997) whereas Kaur and Singh (1994) reported a significant decrease in MCHC and significant increase in MCV in buffaloes suffering from foreign body syndrome. A significant increase in MCV had also been reported by Kaushali *et al.* (1981) in DH suffering buffaloes.

The non-significant changes in the erythrocytic indices did not support the anaemic tendencies in the animals suffering from foreign body syndrome as reported by some workers (Kaushali *et al.*, 1981, Kaur and Singh, 1994). It may be attributed to the alternative mechanisms available for making sure of the availability of the various micro and macronutrients required for haematopoiesis.

The TLC were significantly higher in diseased buffaloes as compared to the values observed in animals of normal healthy groups (Table 1) which is in accordance with the reported higher total white blood cell count in bovines affected with foreign body syndrome (Deshpande *et al.*, 1983, Mehta *et al.*, 1988, Behl *et al.*, 1997, Gokce *et al.*, 2004). However, no increase in total leucocytic count had been reported in bovines suffering from foreign body syndrome (Ward and Ducharme 1994, Rehage *et al.*, 1995). This marked increase in TLC observed in diseased buffaloes could be attributed to tissue injury leading to inflammation and purulent exudation.

Neutrophilia and leucocytosis observed in the diseased buffaloes was in accordance to the observations of Chaudhary *et al.*, (2007) which could be attributed to stress and increased adreno-cortical activity causing destruction of lymphocytes (Deshpande *et al.*, 1983).

The marked neutrophilia and lymphopenia in cases of DH as compared to animals of TRP could be ascribed to the corresponding higher concentration of blood cortisol level in DH affected animals as compared to the buffaloes of TRP group (Singh *et al.*, 2005) and thereby indicating the severity of the disease. The appreciable changes in anemic status observed in adult buffaloes suffering from FBS indicate incorporation of hematinics and blood transfusion in emergency cases.

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