

## HAEMATOLOGICAL STUDIES IN BUFFALOES AFFECTED WITH POST PARTUM METRITIS AND RETAINED PLACENTA

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Haematological studies conducted on buffaloes affected with postpartum metritis and retained placenta showed increase in ESR, MCV and MCH while Hb, PCV, erythrocyte count and MCHC decreased. The buffaloes affected with postpartum metritis showed increase in TLC and individual leucocytes whereas in cases of retained Placenta, a decrease in TLC and a variable number of individual leucocytes was recorded.

### INTRODUCTION

The importance of water buffalo as a dairy animal is evident from the fact that it contributes 74% of the total milk supplies in this country. However, certain malpractices adopted by milk maids in stimulating buffaloes, to let down their milk, wallowing habits of the buffaloes in pond water and frequent occurrence of postpartum complications make this animal vulnerable to reproductive disorders which leads to infertility or sterility (Khan, 1985).

Information about changes in blood values associated with some reproductive disorders in buffaloes is scanty. The objective of the present investigation was, therefore, to find out blood values of buffaloes suffering from postpartum metritis and retained placenta.

### MATERIALS AND METHODS

Forty-two buffaloes affected with postpartum metritis, 8 with retained placenta and 20 clinically healthy buffaloes were included in this study. The buffaloes with Postpartum metritis were diagnosed between 2 to 15 days after parturition. They showed enlargement of uterine horns along with continuous passage of a viscous vaginal fluid containing flakes of pus. The buffaloes which did not expell foetal membranes about 48 hours after parturition were considered as cases of retained placenta. Clinically healthy buffaloes showing normal oestrus cycle were kept as controls.

Blood samples from all the animals were collected in test tubes which contained EDTA as anticoagulant. Smears from fresh blood were also prepared and stained with Giemsa's stain.

## RESULTS AND DISCUSSION

The mean  $\pm$  SE of blood values of 42 buffaloes affected with postpartum metritis, 8 with retained placenta and 20 clinically normal animals are given in Table 1.

Table 1. Comparison of mean  $\pm$  SE between blood values of normal buffaloes and those affected with postpartum metritis and retained placenta.

Parameters	Normal	Diseased condition	
		Postpartum metritis (n=42)	Retained placenta (n=8)
Erythrocyte sedimentation rate (mm after first hour)	0.80 $\pm$ 0.59	4.59 $\pm$ 3.16	5.88 $\pm$ 1.35
Haemoglobin (gm/100 ml)	11.60 $\pm$ 0.90	9.88 $\pm$ 1.21	9.59 $\pm$ 0.73
Packed cell volume (%)	36.55 $\pm$ 0.20	35.55 $\pm$ 5.17	35.25 $\pm$ 4.89
Total erythrocytic count (million/mm <sup>3</sup> )	6.65 $\pm$ 1.32	5.97 $\pm$ 0.90	5.65 $\pm$ 0.79
Mean cell volume (fl)	52.00 $\pm$ 3.15	59.50 $\pm$ 5.45	62.67 $\pm$ 2.45
Mean cell haemoglobin (pg)	17.80 $\pm$ 8.41	19.54 $\pm$ 10.40	17.65 $\pm$ 2.48
Mean cell haemoglobin concentration (gm/100 ml)	31.90 $\pm$ 4.27	27.33 $\pm$ 5.17	24.30 $\pm$ 9.25
Total leukocytic count (thousand/mm <sup>3</sup> )	12.46 $\pm$ 0.95	15.63 $\pm$ 3.03	9.73 $\pm$ 1.13
Absolute neutrophils (mm <sup>3</sup> )	4800 $\pm$ 840	6290 $\pm$ 1954	3349 $\pm$ 471
Absolute lymphocytes (mm <sup>3</sup> )	6400 $\pm$ 1105	7270 $\pm$ 1941	4897 $\pm$ 961
Absolute monocytes (mm <sup>3</sup> )	572 $\pm$ 173	1199 $\pm$ 454	1013 $\pm$ 283
Absolute eosinophils (mm <sup>3</sup> )	463 $\pm$ 108	526 $\pm$ 381	509 $\pm$ 292
Absolute basophils (mm <sup>3</sup> )	114 $\pm$ 69	149 $\pm$ 88	120 $\pm$ 46

The erythrocyte sedimentation rate (ESR) after first hour of collection was 0.80  $\pm$  0.50 mm in normal buffaloes. It increased significantly to 4.59  $\pm$  3.6 and 5.88  $\pm$  1.35 mm in animals affected with postpartum metritis (PPM) and

retained placenta (RP). No marked variation was, however, observed in animals affected with PPM and RP. The increase in ESR in both the conditions could be due to less number of RBCs and increase mean cell volume recorded in this study as has also been reported by Vecoa *et al.* (1974). Coles (1980) stated that ESR increased in those animals which suffered from inflammatory diseases accompanied with degeneration and necrosis.

The haemoglobin (Hb) was  $11.60 \pm 0.90$  gm/100 ml in normal buffaloes showing a decrease to  $9.88 \pm 1.21$  and  $9.59 \pm 0.73$  gm/100 ml in animals affected with PPM and RP respectively. This decrease in both the diseased conditions was correlated with less number of RBCs recorded. These findings were in line with Dhanani *et al.* (1977) who also reported decreased level of Hb in buffaloes suffering from metritis.

The packed cell volume (PCV) was  $36.00 \pm 3.20$  % in normal buffaloes as compared to  $35.55 \pm 5.7$  and  $35.25 \pm 4.89$  % in cases of PPM and RP, respectively. The decrease in PCV in both the diseased conditions was attributed to less number of RBCs recorded as was reported by Benysek and Kudlac (1972).

The total erythrocyte count was  $6.55 \pm 1.32$  which decreased slightly to  $5.97 \pm 0.90$  and  $5.63 \pm 0.79$  million/mm of blood in cases of PPM and RP, respectively. Benysek and Kudlac (1972) and Benjamin (1978) also reported decreased number of RBCs in metritis, while Moore (1946) and Straub *et al.* (1969) recorded similar findings in cases of RP.

Other factors such as mean cell volume (MCV) in normal buffaloes was  $52.00 \pm 3.15$  which increased to  $59.50 \pm 5.45$  in PPM and  $62.67 \pm 2.45$  in cases of RP. The mean cell haemoglobin concentration (MCHC) in normal buffaloes was  $31.90 \pm 4.27$  gm/100 ml which decreased to  $27.38 \pm 5.17$  in cases of PPM and  $24.30 \pm 9.25$  in cases of RP. The above findings showed that the buffaloes affected with PPM and RP were suffering from macrocytic and hypochromic anaemia. The total leucocytic count (TLC) was  $12.46 \pm 0.95$  in normal buffaloes, increasing to  $15.63 \pm 3.00$  in cases of PPM, whereas it decreased to  $9.73 \pm 1.13$  thousand/mm of blood in RP. The increase in TLC in cases of PPM could be due to infection of the reproductive tract leading to systemic reaction as was also reported by Benjamin (1978) and Coles (1980). However, the decrease in TLC in cases of RP might be due to parturition stress and lowered defence mechanisms of the body.

The absolute number of neutrophils, lymphocytes, monocytes, eosinophils and basophils showed variable increase in buffaloes affected with PPM, whereas the neutrophils and lymphocytes decreased in cases of RP. The increase and decrease of different types of leucocytes in PPM and RP could be due to the same factors which caused variations in TLC as described above.

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