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Pre and post caesarean section haematological profile in buffaloes suffering from dystocia in relation to survival rate

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Abstract
Dystocia has a considerable impact on future reproduction and production of animals. The present study was conducted to determine the haematological profile in buffaloes suffering from dystocia in which caesarean section was carried out. The study was conducted on 13 buffaloes suffering from dystocia. Blood samples were collected before (0 hr) and after caesarean section, (12 and 24 hours) and the parameters (Hb, TLC, DLC) were compared in relation with survivability of dam. Animals those survived after caesarean section had non-significant ($P<0.05$) lower Hb and levels were further significantly ($P<0.05$) lower in animals those died. There was significant increase in TLC and neutrophil% at 12 hours post caesarean which remained within similar range up to 24 hours post caesarean in both the groups of animals those survived and died post caesarean.

Keywords: buffalo, caesarean section, dystocia, haematological profile, survival rate

Introduction
Dystocia is defined as difficult birth, which requires significant external assistance. It has a considerable impact on future reproduction and production of animals. Buffaloes are less prone to dystocia as compared to cattle but still it has a great impact on production (Kaushik and Mathur, 2005) [5]. Dystocia in various breeds of buffalo is ranging from 5.6 to 12.6% in Murrah, 8.9% in Jaffrabadi and between 4.6 and 5.4% in Surti buffalo (Khan *et al*., 2009) [6]. Dystocia in buffaloes can be relieved by different obstetric methods, including the caesarean operation and fetotomy. Nowadays, the caesarean operation is one of the most common surgical procedures performed by veterinarians in bovine practice and is considered as a routine obstetric technique. The success rate of operated females depends upon the overall well-functioning of the internal organs and blood profile. Unfortunately, in veterinary practice the pre-operative assessment of animals is not taken into account with great care. Subsequently, the prognosis of the case can't be predicted with certainty. The scanning revealed scanty literature on haematological profile in relation to survival rate of dam after caesarean section; however Amer and Hashem (2007) [2] studied clinical and biochemical picture of uterine torsion in Egyptian Buffaloes and concluded that affected buffaloes with uterine torsion showed normocytic normochromic anaemia and leucocytosis accompanied by neutrophilia and monocytosis. Therefore, the present study was conducted to evaluate pre and post-caesarean section haematological profiles in dystocia affected buffaloes in relation with survival rate.

Materials and Methods
The study was conducted on clinical cases of buffaloes suffering from dystocia, reported to Veterinary Clinical Complex (VCC), LUVAS, Hisar and a total of thirteen animals were selected for the study. The blood samples were collected by jugular veni-puncture in vial containing EDTA anticoagulant using 16 gauze needles with 5 ml disposable syringe before caesarean, 12 and 24 hours post-caesarean section. The Haemoglobin (Hb), Total Leukocyte Count (TLC) and Differential Leukocyte Count (DLC) were estimated by haematology autoanalyzer.

Results and Discussion
Hb and TLC ranged between 7.1 to 13.1 gm/dl and 4.5 to 9.6 thousand/cumm, respectively whereas Neutrophil, lymphocyte and monocyte count ranged between 60 to 77, 21 to 37

and 1 to 3 %, respectively (table 1, 2 and 3). The mean pre-caesarean operation values of Hb were significantly (P<0.05) higher as compared to values 12 hours post caesarean operation in the both group. The Hb values increased non-significantly (P>0.05) again within the range similar to pre-caesarean section values in animals those survived.

Table 1: Haemoglobin (gm/dl) levels (mean ± SE) of animals those survived and died after caesarean.

	Time before (0hr) and after caesarean section (12hr and 24hr)		
	0hr	**12hr**	**24hr**
Haemoglobin % in animals those survived	12.02±0.52^{a}	9.92±0.82^{b}	11.68±2.5^{ab}
Haemoglobin % in animals those died	11.66±0.48^{a}	9.3±0.36^{b}	8.91±0.322^{b}

Means with different superscript differ significantly within group between scheduled time interval at P<0.05.

The pre-caesarean operation Hb values were non-significantly (P>0.05) lower in animals those died as compared to those survived. The Hb values in this group (those died) were significantly (P<0.05) lower as compared to pre-caesarean section values within the group. The mean Hb values decreased non-significantly (P>0.05) at 24 hours post-caesarean which were significantly (P<0.05) lower than pre-caesarean Hb mean values. The haemoglobin value decreased significantly 12 hour post-caesarean section in both the groups; however, Hb level increased back 24 hours post-caesarean in animals those survived but it remained non-significantly (P>0.05) lower in animals those died. This might be one of the reasons that these animals succumbed post operation.

Amer and Hashen (2007) [2] reported similar findings in buffaloes suffering from uterine torsion. In their study, the Hb level decreased after caesarean and recovered within 24 hours post-caesarean in animals those survived. The observations of Hb level before and up to 24 hour post caesarean may be important to predict survivability of the animals. Khan (2009) [7] reported major change in hemogram in cows and buffaloes in animals undergoing various operations to relive dystocia. Hemogram of dystocia affected buffaloes revealed a significant (P<0.05) decline in haemoglobin concentration level at 24 hours post-partum (Khan, 2009) [7]. Similar observations have been recorded by Khatri (1985) [8] and Dahiya (1998) [3] who reported that the Hb levels declined non–significantly during the post treatment period in torsion affected buffaloes. Dhindsa *et al*. (2005) [4] assessed that the Hb remained within the normal physiological range in dystocia affected buffaloes with labour pains from less than 12 hours to more than 36 hours duration. Moderate haemo concentration in the former and supports the earlier observation of Khatri (1985) [8] and Atwal (1993) [1] of higher Hb and PCV in torsion affected buffaloes which died post-caesarean. Prabhakar *et al*. (1999a) [9] opined that increase in PCV and Hb during the post treatment period indicated poor prognosis in buffaloes with dystocia.

In the present study, pre-caesarean TLC values were significantly (P<0.05) lower than post caesarean values in animals those survived. Similar was the pattern up to 24 hours in animals those died. In general, TLC values remained comparatively lower in animals those died than those survived; however, the variation was statistically non-significant (P>0.05). The TLC values were significantly (P<0.05) higher 24 hours post-caesarean than pre-caesarean values.

Table 2: Total leucocyte count (thousand/cumm) levels (mean ± SE) of animals those survived and died after caesarean

	Time before (0hr) and after caesarian section (12hr and 24hr)		
	0hr	**12hr**	**24hr**
TLC (thousand/cumm) in animals those survived	6.86±0.46^{a}	8.02±0.52^{b}	8.4±0.51^{b}
TLC (thousand/cumm) in animals those died	6.13±0.44^{a}	7.4±0.43^{b}	7.82±0.45^{b}

Means with different superscript differ significantly within group between scheduled time interval at P<0.05.

The TLC values increased after caesarean in both the groups and values of TLC tended to be non-significantly (P>0.05) higher in animals those survived than those died. Amer and Hashen (2007) [2] reported obtained values for total leucocyte and differential leukocyte counts in buffaloes with uterine torsion showed a significant (P<0.05) increase in total leucocyte count (before detorsion and immediately after birth). Khan (2009) [7] reported TLC immediately postpartum and granulocyte count at pre-partum stage in dystocia affected animals were significantly higher (P<0.05) than that of normally calved animals.

In the present investigation pre-caesarean neutrophil values were comparatively lower in animals those died than those survived. There was significant (P<0.05) increase in neutrophil values at 12 hours post caesarean that remained high significantly (P<0.05) till 24 hours post caesarean in both groups. The neutrophil count at 12 hour post caesarean were significantly (P<0.05) higher in animal those survived as compared to those died.

The pre-caesarean lymphocyte count was significantly (P<0.05) higher in animals those died as compared to those survived. There was significant (P<0.05) decrease in values of lymphocyte 12 hours post caesarean section. In the both groups, there was significant (P<0.05) decrease in lymphocyte percent 12 hours post caesarean; however values were non-significantly (P>0.05) higher in animals those died as compared to those survived.

There was no significant (P>0.05) difference in monocyte count in both groups.

Table 3: Differential leucocyte count levels (mean ± SE) of animals those survived and died after caesarean section

	Time before (0hr) and after caesarian section (12hr and 24hr)		
	Neutrophil		
	0hr	**12hr**	**24hr**
Neutrophil (%) in animals those survived	68.4±2.2^{a}	74±1.3^{Ab}	74.2±1.06^{b}

Neutrophil (%) in animals those died	65.25±0.99[a]	71.25±0.77[Bb]	72.75±0.77[b]
	Lymphocyte		
Lymphocyte (%) in animals those survived	28.6±2.4[Aa]	24.4±1.2[b]	23.6±0.9[b]
Lymphocyte (%) in animals those died	32.37±0.86[Ba]	26.75±0.64[b]	25±0.73[b]
	Monocyte		
Monocyte (%) in animals those survived	1.8±0.3	1.6±0.2	2.2±0.3
Monocyte (%) in animals those died	2.3±0.37	2±0.26	2.25±0.16

The mean values bearing different superscripts (a, b) differ significantly (P<0.05) within group. The superscripts (A, B) differs significantly (P<0.05) between groups within periods.

Neutrophil (%) increased after operation in both group of animals. The increase was significant in animals those survived 12 hour post caesarean in comparison to those died. Pre operation lymphocyte (%) was significantly higher in animals those died as compared to those survived. There was no significant difference between animals those survived and those died. A significant decrease ($P<0.05$) in eosinophils (before detorsion, after detorsion and immediately after birth), in association with insignificant change in lymphocytic count in the affected buffaloes were recorded by Amer and Hashen (2007) [2] when compared with the normal buffaloes.

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References

1. Atwal JS. Studies on the stress of dystocia in buffaloes. M.V. Sc. Thesis, Punjab Agric. Univ. Ludhiana. India, 1993.
2. Amer H, Hashem V. Relationship between clinical and biochemical picture of uterine torsion in Egyptian Buffaloes (Bubalus Bubalis). The Internet Journal of Veterinary Medicine, 4(1):31-39.
3. Dahiya NK. Studies on post caesarean rumen function and the use of b-adrenergic agonists in buffaloes with dystocia. M.V. Sc. Thesis Haryana Agric. Univ., Hisar, India, 1998.
4. Dhindsa *et al.* Effect of duration of dystocia on haematobiochemical alteration in buffaloes. Indian J Anim. Reorod. 2005; 26:117-119.
5. Kaushik SK, Mathur AC. Time of parturition and incidences of calving abnormalities in Murrah buffaloes. Indian J Anim. Sci. 2005; 75:227-228.
6. Khan HM, Bhakat M, Mohanty TK, Gupta AK, Raina VS, Mir MS. Peripartum reproductive disorders in buffaloes - an overview. Vet. Scan. 2009; 4:1-10.
7. Khan S. Studies on etio-pathology and therapeutics of bovine dystocia in Himachal Pradesh. CSKHPKV, Palmpur (India), 2009.
8. Khatri CK. Studies on pathophysiology and treatment of uterine torsion in buffaloes. M.V. Sc. Thesis, Haryana Agric. Univ., Hisar. India, 1985.
9. Prabhakar *et al*. Progenestic importance of certain blood indices in relation to survivability of the buffaloes after obstetrical treatment. Indian J Anim. Reporod. 1990a; 20:107-09.