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بعض موءشرات مصل الدم في الجاموس المصاب بالالتفاف الرحمي

محمد كرام ، أحمد عبدالرحيم* ، محمود طنطاوي** ، باهي سرور*

تم جمع عينات الدم من خمسة حيوانات من الجاموس ذات الولادات الطبيعية
وستة حيوانات من الجاموس المصابة بالالتفاف الرحمي •

وحلل مصل الدم لدراسة البروتين الكلي، الزلال، السكر، الكلوستيرول، الكرباتنين،
واليورانييتروجين، الصوديوم، البوتاسيوم والكلورايد • وكانت التغيرات في حدود
المسموح ماعدا الجلوكوز والكلوستيرول التي أظهرت نقص ملحوظ في الحيوانات المصابة
عنها في الحيوانات ذات الولادات الطبيعية •

* قسم التوليد والتلقيح الصناعي - كلية الطب البيطري - جامعة أسيوط •
** قسم الجراحة - كلية الطب البيطري - جامعة أسيوط •

Dept. of Vet. Medicine,
Fac. of Vet. Med., Assiut University,
Head of Dept. Prof. Dr. I.S. Abdallah.

**SOME SERUM PARAMETERS IN BUFFALO COWS
AFFECTED WITH UTERINE TORSION**
(With One Table)

By
M.H. KARAM; A.A. FARRAG*, M.T. NASSEF and B.H. SERUR***
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SUMMARY

Blood samples were collected from (5 normally calved and 6 affected with uterine torsion) buffaloes. Serum total protein, albumin, globulin, glucose, cholesterol, phosphorous were analysed. Variations were within the acceptable limits except for serum glucose and serum cholesterol which showed significantly (P/ 0.05) lower values in animals with uterine torsion than normally calved buffaloes.

INTRODUCTION

Torsion of the uterus in bovine is one of the most dramatic causes of dystocia, which if not properly diagnosed and rationally treated may lead to death of the mother or the foetus or both. This condition has been stated to be the most common in cows and occasionally in ewes and goats (BENESCH and WRIGHT, 1951, and ROBERTS, 1971).

ROBERTS (1971); reported that uterine torsion in cattle represented 7% of all dystocias. FOUAD and EL-SAWAF (1963), observed 36 cases of uterine torsion among 112 dystocias in buffaloes, while ZAKI *et al.* (1968), stated that uterine torsion accounted for 29.5% of dystocias in buffaloes. The etiology of this condition is still hypothetical and inconclusive (SINGH *et al.*, 1978).

The knowledge of blood biochemistry of dairy animals is of importance in assessment of their health, nutritional status, diagnosis and prognosis of many diseases. In view of this, the relation between the various blood serum parameters with the nutritional status, stage of lactation, pregnancy, fertility and reproductive performance have been reported SEIDEL and SCHROTER, 1970; ROWLANDS *et al.*, 1975; ROWLANDS *et al.*, 1977 & 1980; BENNINK *et al.*, 1978; LEE *et al.*, 1978 and LARSON *et al.*, 1980).

The available literature lack any data concerning the changes in blood serum parameters in cases of uterine torsion in buffaloes or even cows except the observations of PATTABIRAMAN and PANDIT (1980), who studied only the hematological and serum enzymatic activity in buffaloes affected with such cases.

This work is intended to report the possible changes in 12 blood serum parameters in buffaloes affected with uterine torsion. This study may through some light in dealing with such cases.

* : Dept. of Obstetrics, Fac. of Vet. Med., Assiut University, Assiut, Egypt.

** : Dept of Surgery, Fac. of Vet. Med., Assiut University, Assiut Egypt.

MATERIAL and METHODS

A total of eleven buffalo cows (aged 4-8 years old) were included in this study. Six animals were affected with more than 90 degree right uterine torsion. Five normally calved buffaloes were used as a control group. The included animals were belonged to the villages of Assiut Governorate, Egypt.

Blood samples were collected from animals just after diagnosis of the condition (by vaginal and rectal examination) or 12 hours after calving in the control group. Serum was obtained from non heparinized blood sample by centrifugation (3000 r.p.m. for 15 minutes).

Serum total protein, albumin, cholesterol, creatinine, blood urea nitrogen, glucose, calcium, inorganic phosphorus were determined using reagent testkits-Bio Merieux-France. Such parameters were measured spectrophotometrically by the use of Bye-Unicum computerized double beam spectrophotometer model 8800, according to the selected length of each parameter. Serum sodium and potassium were measured by means of corning flame phtometer 400. Serum chloride was determined by corning chloride-meter 925. Statistical analysis of the obtained data was carried out by the methods adopted after SNEDECOR and COCHRAN (1974).

RESULTS

The mean values and standerd errors of the blood serum parameters measured for normally calved buffalo-cows and those affected with uterine torsion are given in table (1).

Statistical analysis of the obtained data revealed that the mean values of the serum glucose and serum cholestrol were significantly ($P/ 0.05$) higher in control group than those suffered from uterine torsion. The mean values for total serum globulin, creatinine, BUN, sodium and chloride were found to be higher in animals with uterine torsion than those calved normaly. However, serum total protein, albumin, calcium; phosphorous and ptassium were found to be higher in control group than those with uterine torsine. Statistically, the differences were non significant.

Table (1): Biochemical analysis of serum in normally calved buffaloes and those affected with uterine torsion.

	Uterine torsion Mean \pm S.E (N=5)	Normal calvings Mean \pm S.E (N=6)	T-test
Total protein (gm%)	11.73 \pm 1.56	12.86 \pm 1.62	0.325
Albumin (gm%)	2.39 \pm 0.55	3.43 \pm 0.45	1.463
Globulin (gm%)	9.34 \pm 2.16	9.43 \pm 2.03	0.105
A/G ratio	0.4 \pm 0.4	0.6 \pm 0.4	
Cholestrol (mg%)	54.8 \pm 19.54	116.7 \pm 15.05*	2.5097
Creatinine (mg%)	3.58 \pm 0.92	1.93 \pm 0.09	1.793
BUN (mg%)	11.72 \pm 1.54	9.02 \pm 0.94	1.497
Glucose (mg%)	43.36 \pm 4.1	54.97 \pm 9.87*	1.086
Calcium (mg%)	6.1 \pm 0.26	6.72 \pm 0.36	1.393
Phosphorus (mg%)	4.49 \pm 1.34	5.66 \pm 0.51	0.822
Ca/P ratio	2.30 \pm 1.90	1.20 \pm 0.30	
Sodium (m.mol/L)	133.1 \pm 2.98	132.32 \pm 4.49	0.145
Potassium (m.mol/L)	7.92 \pm 0.49	9.13 \pm 0.54	1.82
Chloride (m. mol/L)	67.2 \pm 6.58	66.5 \pm 12.32	0.0512

S.E. = Standard error

* : $P/ 0.05$

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DISCUSSION

When comparing the results of this study with results of blood biochemistry from other studies on buffaloes, it must be emphasised that limitation exists because of variations in climatic conditions, husbandry practices, nutrition, age, time of sample collection and methods of testing.

The serum total protein and globulin obtained from animals with uterine torsion were lowered than the control group. The differences were statistically non significant. Similar results were reported by HAMANA and USUI, 1972; SZULE, 1975; WILLIAM and MILLAR, 1979. Moreover, they explained that the decrease was due to transfer of immunoglobulins to the colostrum. In cattle, LITTLE (1974) and ROWLANDS *et al.* (1975) stated that, since total globulin has been driven as the difference between total protein and albumin, it is impossible to say whether the increase in globulin concentration after calving was related to the decrease in albumin or whether the changes occurred independently. ROWLANDS *et al.* (1980) mentioned that albumin concentration decreased at calving in some but not all cows and remained low for up to two weeks.

The mean values of A/G ratios were decreased in animals with uterine torsion than normally parturated ones. That decrease may be attributed to the reduction in albumin synthesis by the liver which is slightly affected (MEDWAY *et al.*, 1969).

Concerning the serum glucose level, values obtained from recently calved animals 54.97 mg% was similar to 57.6 mg% reported by EL-BAGHDADY (1979) for buffaloes in early puerperium. However, the difference in the serum glucose level was significantly ($P/ 0.05$) lower in case of uterine torsion than the control group. This may be explained by the reduced appetite resulted from the colicky pains and disturbed condition of the animal. Moreover, EL-BAGHDADY (1979) reported that the serum glucose level showed significant decrease during the last trimester of pregnancy. The obtained results revealed that the mean value of serum cholesterol in buffaloes with uterine torsion were significantly ($P/ 0.05$) lower than value obtained from normally calved buffaloes. These results do not differ from those reported for dairy cattle during late pregnancy and early post-partum period (GLASER, 1974 and FURTMAYER, 1975).

The measurement of creatinine and BUN are of diagnostic and prognostic significance. Elevation to 6 and 40 mg% respectively are usually of hopeless situations. In the present study both levels of creatinine and BUN were high. The elevation was not significant. This elevation was attributed to slight affection of kidney function (MEDWAY *et al.*, 1969).

Regarding to serum calcium and inorganic phosphorus, the mean values were higher in animals with uterine torsion than the control group. Although the difference was not significant. MAHFOUZ (1987) reported that serum calcium and inorganic phosphorus in normally calved buffaloes were 9.23 mg% and 5.27 mg% respectively. Canfield *et al.* (1984) reported lower values in Swamp buffaloes. The same author said that the serum phosphorus level is a reflection of nutritional status at time of sampling as it is accepted that the blood level is sensitive to nutritional factors, and there is a less control of their concentration when compared to calcium.

Ca/P ratios were somewhat higher in animals affected with uterine torsion than those of control, that elevation may be due to parathyroid disturbance (BLOOD and HENDERSON, 1979).

Regarding to serum electrolytes, the mean values obtained for sodium and chloride were higher in buffaloes with uterine torsion than in the control group and potassium showed the opposite trend. The differences were non significant, and of no diagnostic value. This

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supported by the statement of COLES (1980) who stated that a decrease of serum sodium concentration occurs most frequently because of excessive sodium loss. Sodium loss is most likely to occur from gastrointestinal tract through vomiting, diarrhea or in renal disease. The sodium conversion mechanism is operating deficiently chloride alterations generally follow those of sodium, as chlorides is absorbed, excreted and distributed passively according to electrical gradients established by active transport of sodium (TASKER, 1971). The concentration of chloride, however, is subject to somewhat greater variations than that of sodium, since to a certain extent, the organism can exchange chloride from other ions (OSER, 1979).

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