



E-ISSN: 2320-7078

P-ISSN: 2349-6800

www.entomoljournal.com

JEZS 2020; 8(6): 623-625

© 2020 JEZS

Received: 03-09-2020

Accepted: 05-10-2020

Ram SagarProfessor, Department of TVCC,
Mathura, Uttar Pradesh, India**Atul Saxena**Professor and Head, Department
of ARGO, Mathura, Uttar
Pradesh, India**Sharadkumar**Assistant Professor Division of
TVCC, F.V.Sc & AH, SKUAST-
J, R.S. Pura, Jammu and
Kashmir, India**Sudhir Kumar**Assistant Professor Division of
VGO, F.V.Sc & AH, SKUAST-J,
R.S. Pura, Jammu and Kashmir,
India

Clinical, biochemical and hormonal picture of uterine torsion in buffaloes (*Bubalus bubalis*)

Ram Sagar, Atul Saxena, Sharadkumar and Sudhir Kumar

Abstract

Uterine torsion is one of the major causes of dystocia in bovine which is often encountered by the field veterinarians and occurs more commonly in multiparous and advanced pregnant animals. A total number of 50 clinical cases of buffaloes suffering from uterine torsion were included in this study during a period of three years. Treatments of uterine torsion were corrected by rotation of dam in 42, rotation of fetus in one and combination of both methods was applied in 7 cases. Out of 50 cases, 13 (26%) were the cases of precervical and 37 (74%) were the cases of post cervical uterine torsion. The degree of torsion amongst the cases treated were up to 90° in 13 (26%) cases, up to 180° in 6 (12%) cases and >180° in 31 (62%) cases. Mean total erythrocyte's count and mean leucocytes count in buffaloes were within normal limits. The values of Hb and ESR were within normal limits, while PCV values in buffaloes were higher than the reported normal values. The mean values of Ca and P in buffaloes were found to be as 5.21±0.26 mg/dl and 5.10±1.64 mg/dl respectively. The serum calcium concentration less than 6.5 mg/dl reflects metabolic disorders. The mean values of electrolytes i.e. Na, K and Cl were 147.27±0.30, 6.18±0.24 and 77.63±1.28 meq/liter, respectively. In our study concentration of Na did not suggest hypo or hyper natremia. In our study the concentration of K ranges between 2-8 meq/liter. The values of Cl were within normal limits. The mean values of progesterone and estrogen in buffaloes before relieving dystocia were 2.58±0.23 ng/ml and 522.08±58.70 pg/ml.

Keywords: buffalo, uterine torsion, clinical, biochemical and hormonal picture

Introduction

In bovine, uterine torsion is one of the major causes of dystocia which is frequently encountered by the field veterinarians (Pearson, 1971) [5], (Sidiquee and Mehta, 1992) [7], (Singh *et al.*, 1978) [8], (Roberts 1986) [6] observed that uterine torsion occurs more commonly in multiparous and advanced pregnant animals. 5-30% of the dystocia is due to uterine torsion leads to narrowing of the birth canal. However, the incidence of uterine torsion represented about 29.5% to 30.6% of the buffaloes with dystocia (Sidiquee and Mehta, 1992) [7]. During pregnancy, the relative increase in size of broad ligament leads uterus to curve around the point of attachment, this anatomical prearrangement allows an increased mobility on uterus in last trimester of gestation and make it predispose for uterine torsion (Roberts, 1986) [6], (Sloss and Dufty, 1980) [9]. Horn asymmetry becomes maximal in last months of pregnancy, the uterine torsion is an exception rather than the rule. The direct cause is the majority an active one and any condition which permits increased mobility of the uterus may predispose to uterine torsion (Roberts, 1986) [6]. It is evident from the available literature that mineral biochemical and haematological values are interrelated with pregnancy, parturition and post-partum reproductive efficiency. Hence analysis of certain constituent in the blood may help to access the reproductive organ. Similarly, it can be used for warm possible occurrence of certain reproductive disorders.

Material and Methods

A total number of 50 clinical cases of buffaloes suffering from uterine torsion were included in this study during a period of three years. All animals were presented for treatment in the Department of Veterinary Obstetrics and Gynaecology, College of Veterinary Science and Animal Husbandry, Mathura. Some of these cases were primiparous but others were pluriparous.

Corresponding Author:**Sharadkumar**Assistant Professor Division of
TVCC, F.V.Sc & AH, SKUAST-
J, R.S. Pura, Jammu and
Kashmir, India

Treatment procedures

Strategies adopted for the relieving the uterine torsion were rotation of Dam (Plank approach), rotation of fetus and combination of both methods.

Rotation of dam

Trials of detorsion were done sporadically in 42 cases of uterine torsion by rolling in the laying position in the direction of torsion after applying plank and putting weight by attendant. This method is indicated if fetus can not be reached due to the location or severity of the torsion, or if the animal is preparturient (Sloss and Dufty, 1980)^[9], (Roberts, 1986)^[6]. These verity of the torsion and the stage of cervical dilatation were critically. Rotation of fetus was applied in one case only where birth canal was dilated and fetus was approachable by obstetrician's hands. Combination of rotation of dam and fetus was applied in seven cases.

Clinicopathological investigations

Blood samples were collected from 50 buffaloes suffering from uterine torsion before detorsion via jugular vein by using 20 ml disposable syringe, Nearly 15 ml of blood was collected and immediately following collection samples were separated into two fraction of 10 and 5 ml into sterilized test tubes. Of the 10 ml fraction a blood slant was made and left overnight for separating of serum. The collected serum sample was centrifuge as 3000 rpm for 10 minute in order to remove the cell debris etc. the separated serum was transferred into sterilized disposable cryovials and after proper labelling samples were kept at -20°C in a deep freezer pending assay. The serum was subsequently used for analysing various minerals (Na, K, Ca, P and Cl) and

hormones (Estrogen and progesterone).

The 5 ml fraction of the blood was kept in a test tube containing 2-3 drops of anticoagulant (90% EDTA) and after thorough mixing was used for various haematological studies viz. Haemoglobin (Hb), total leukocyte count (TLC), total erythrocyte count (TEC), differential leukocyte count (DLC), packed cell volume (PCV) and erythrocyte sedimentation rate (ESR).

Statistical analysis

The results were expressed in terms of means and standard error employing standard statistical procedure. The means were compared using student's test (Snedecor and Cochran, 1984)^[10].

Results and Discussion

Perusal of table no 1 revealed that 50 cases of uterine torsion in buffaloes were treated. Out of these 13 (26%) were the cases of precervical and 37 (74%) were the cases of post cervical uterine torsion. The degree of torsion amongst the cases treated were up to 90° in 13 (26%) cases, up to 180° in 6 (12%) cases and >180° in 31 (62%) cases. Amongst the 50 cases of torsion of uterus, 42 (84%) were detorted using Schaffer's plank approach, 1 (2%) cases was detorted using rotation of fetus while in 7 (14%) of the cases both plank and rotation of fetus approaches were used to relieved the dystocia. All 50 cases were relieved of dystocia leading to pervaginal delivery of 27 (54%) live and 23 (46%) dead foetuses. As a result of obstetrical manoeuvres in 6 (12%) of the case there were mild rupture to the birth canal while in 3 (6%) cases the rupture was appreciable.

Table 1: Summary of dystocia in buffaloes treated for torsion of uterus

S. No.	Attributes	Torsion of uterus
1	No. of cases handled	50
2	Type of Uterine Torsion	
2.1	Pre cervical	13 (26%)
2.2	Post cervical	37 (74%)
3	Degree of uterine torsion	
3.1	90°	13 (26%)
3.2	180°	6 (12%)
3.3	>180°	31 (62%)
4	Strategies adopted for relieving uterine torsion	
4.1	Rotation of dam (Plank approach)	42 (84%)
4.2	Rotation of fetus	1 (2%)
4.3	Both	7 (14%)
5	Cases relieved	50 (100%)
6	Status of birth canal following vaginal delivery	
6.1	Mild rupture	8 (12%)
6.2	Appreciable rupture	3 (6%)
7	Status of fetus delivered	
7.1	Live	27 (54%)
7.2	Dead	23 (46%)

Perusal of table no.2 revealed that the mean total erythrocyte's count in buffaloes suffering with uterine torsion was found as $7.23 \pm 0.73 \times 10^6$ cu/mm. The values of total erythrocyte's count in cases of uterine torsion in buffaloes were found to be within normal limits. The mean leucocytes count in buffaloes was found as $2.34 \pm 0.45 \times 10^3$ / cu mm, which is lower compared to the normal limits. The mean values for Hb, ESR and PCV in buffaloes were found to be as 13.1 ± 0.21 g%, 32.24 ± 1.42 mm/24 hrs and 39.45 ± 0.86 per

cent. The values of Hb and ESR were within normal limits, while PCV values in buffaloes were higher than the reported normal values. The mean DLC (%) values in buffaloes as N: 37.76 ± 1.03 , B: Nil, E: 2.08 ± 0.10 , L: 58.37 ± 0.94 and M: 2.21 ± 0.11 per cent. Our results for DLC in buffaloes are increased/ nearly similar compare to values in normal condition. Our findings of total erythrocyte's count, Hb, DLC and PCV were within normal range (Nittin *et al.*, 2013)^[4], (Amer and Hashem, 2007)^[3].

Table 2: Blood profile for various blood parameters from cases of dystocia due to torsion of uterus in buffaloes

S. No.	Attributes	Blood parameters in cases of uterine torsion in buffaloes (N-38)				
1.	TEC (10 ⁶ /cubic mm)	7.21±0.73 (6.2-8.2)				
2.	TLC (10 ³ /cubic mm)	2.3±0.54 (1.3-2.8)				
3.	HB (g%)	13.10±0.21 (11.00-16.00)				
4.	ESR (mm/24hrs)	3.2±0.14 (0.02-0.2)				
5.	PCV (%)	39.45±0.86 (28-48)				
6.	DLC (%)	N	B	E	L	M
		37.76±1.03 (28-49)	nil	2.08±0.10 (1-3)	58.37±0.94 (47-70)	2.21±0.11 (1.4)

Table 3: Serum profile for various electrolytes and hormone from cases of uterine torsion in buffaloes

S. No.	Serum Electrolyte (N-38)	Torsion of uterus in buffaloes
1	Calcium (Ca mg/dl)	5.21±0.26 (2-8)
2	Phosphorus (P mg/dl)	5.10±1.64 (.08-7.39)
3	Sodium (Na meq/liter)	147.27±0.30 (142.2-149.2)
4	Potassium (K meq/liter)	6.18±0.24 (2-8)
5	Chloride (Cl meq/liter)	77.63±1.28 (62-92)
Serum Hormone (N-24)		
6	Progesterone (ng/ml)	2.58±0.23 (1.25-4.75)
7	Estrogen (pg/ml)	522.08±58.70 (160-1080)

Perusal of table no. 3 revealed that mean values of Ca and P in buffaloes were found to be as 5.21±0.26 mg/dl and 5.10±1.64 mg/dl respectively. The serum calcium concentration less than 6.5 mg/dl reflects metabolic disorders. In parturient buffaloes calcium concentration of less than 6 mg/dl results in recumbency of the animals which was evident in our study. The reference value of serum calcium and phosphorus is 8.18-12.46 and 4.39-7.85 mg/dl, respectively (Abid Ellah *et al.*, 2014) [1]. The mean values of electrolytes i.e. Na, K and Cl were 147.27±0.30, 6.18±0.24 and 77.63±1.28 meq/liter, respectively. In our study concentration of Na did not suggest hypo or hyper natremia. In our study the concentration of K ranges between 2-8 meq/liter. Some of symptoms of hypokalemia like generalized muscular weakness was noticed in some buffaloes. The values of Cl were within normal limits. The serum concentration of Na, K and Cl in our study is in agreement of Akhtar *et al.* (2010) [2]. The mean values of progesterone and estrogen in buffaloes before relieving dystocia were 2.58±0.23 ng/ml and 522.08±58.70 pg/ml. The concentrations of progesterone suggest that the process of parturition has started and resulted in the decline in the progesterone concentration (Amer and Hashen, 2007) [3]. Observing the range of hormone concentration, it may be apparent that in cases where the concentration is low, proper dilation of cervix is achieved and that has resulted in the safe per vaginal delivery. However, where concentration was found higher, may be a possibility that sufficient dilation of birth canal could not be achieved following detorsion or has resulted in stiffness of the birth canal which resulted in its damage during per vaginal delivery. Our finding for estrogen concentration from cases of dystocia due to torsion of uterus is more reflecting that the process of parturition has began.

Conclusion

It can be concluded that incidence of torsion of uterus was higher in pluriparous buffaloes compare to cattle. Blood parameters like TEC, Hb and ESR remains unaffected due to dystocia. The pattern of DLC reflect parturition stress. No changes in electrolytes and hormonal profile were observed.

Acknowledgements

Authors are thankful to the Dean, College of Veterinary Sciences and Animal Husbandry, Mathura, U.P. for providing the necessary help.

References

- Abid Ellah MR, Hamed MI, Ibrahim DR, Rateb HZ. Serum biochemical and haematological reference intervals for water buffalo *Bubalus bubalis* heifers, Journal of South African Veterinary Association 2014;85(1):1-7.
- Akhtar MS, Farooq AA, Muhammad SA, Lodhi LA, Hayat CS, Aziz MM. Serum electrolyte and mineral variations during pregnancy and lactation in Nili-Ravi buffalo. Biological Trace Element Research 2010;137:340-343.
- Amer H, Hashem M. Relationship between clinical and biochemical picture of uterine torsion in Egyptian buffaloes (*Bubalus bubalis*). The Internet Journal of Veterinary Medicine 2007;4(1):1-11.
- Nittin DS, Harmanjit SB, Prashant DG, Madhav NM. A retrospective evaluation of haematological values in clinical cases of water buffaloes. Veterinary World 2013;6(2):103-105.
- Pearson H. Uterine torsion in cattle. A review of 168 cases. Veterinary Record 1971;89:597-603.
- Roberts SJ. Veterinary Obstetrics and genital diseases. IInd Ed. Ithaca, New York 1986.
- Siddiquee GM, Mehta BM. Uterine torsion in a buffalo with viable twins. Indian Veterinary Journal 1992;69:257-258.
- Singh J, Prasad B, Rathor SS. Torso-uterine in the buffalo (*Bubalus bubalis*). An analysis of 65 cases. Indian Veterinary Journal 1978;55:161-165.
- Sloss V. Handbook of bovine obstetrics. Williams and Wilkins Baltimore, USA 1980.
- Snedecor GW, Cochran WG. Statistical methods. 6th Ed. Allied pacific pvt. Ltd. Bombay 1984.