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Studies on the Therapeutic Approaches for Uterine Torsion in Surti Buffaloes (*Bubalus bubalis*)

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Abstract

The present study was conducted on 55 pregnant torsion affected Surti buffaloes presented to VCC of the College, Navania (Udaipur). Three types of therapeutic approaches were used, *viz.,* 'simple rolling of the dam' (n=14), Sharma's modified Schaffer's technique (n=41) and Caesarean Section (n=20/41) with the success rate of 100 %, 51.22 % and 36.36 %, respectively. On an average 1-4 rolling were tried and then CS was performed. The survival rate of dam following vaginal delivery and CS was 94.28 (33/35) and 80.00 (16/20) %, respectively. The overall rate of survival for dam and fetus was 89.09 (49/55) and 9.09 (5/55), respectively. The success rate was better for cases with less degree of torsion (up to 180°). The birth ratio among the affected cases for male and female was 58:42, suggesting male fetus as one of the predisposing causes of torsion in buffalo.

Introduction

Uterine torsion is one of the major problems for farmers affecting adversely the normal progression of advanced pregnancy and parturition (Gupta *et al.,* 1981). Uterine torsion usually occurs in gravid horn and is defined as the twisting of the uterus (more than 45 degrees) on its longitudinal axis (Purohit *et al.,* 2011). Expulsion of the fetus is impossible unless the condition is corrected and circulatory disturbances can result in death of both the fetus and the dam, if a prompt diagnosis and treatment is not made (Roberts, 1986). So, timely management of the problem is important to save the life of the fetus as well as the dam. The purpose of this study was to describe three therapeutic approaches and clinical outcome of uterine torsion cases in buffaloes.

Materials and Methods

The study was conducted on 55 pregnant torsion affected Surti buffaloes presented with a history of straining, colic, or reduced feed intake at Veterinary Clinical Complex of the College at Navania, Vallabhnagar (Udaipur) between February, 2015 and June, 2017. Per-rectal and per vaginal examinations were carried out to diagnose uterine torsion. The clinical decision of adoption of one or more therapeutic approaches

depended upon various factors, *viz.,* the general condition of dam, the degree of uterine torsion and the stage of gestation.

Three approaches for detorsion applied were (1) Simple rolling of dam, (2) Rolling using plank (Sharma's modified Schaffer's technique) and (3) Caesarean section. Buffaloes with better general condition were tried for simple rolling or rolling using plank. In cases with 90-180 degree of uterine torsion, simple rolling was attempted and in cases with more than 180 degree of uterine torsion the technique of rolling with plank and Caesarean section was employed. In general, the pre-term cases (n=14) were first tried with simple rolling of the dam, whereas the full-term cases (n=41) were mostly treated with rolling using plank and/or Caesarean section. Failure to detort the case after 4 rolling formed the base for CS. Sufficient fluid replacements, antibiotics and dexamethasone were administered to affected animals depending upon the general condition.

Results and Discussion

Rolling of the dam is the simplest method for relieving uterine torsion. In the present study, there was 100 % success with this method of simple rolling of the dam (Table 1). The literature however reports that detorsion of uterus is successful in 18-100% cases by rolling of the dam without a plank (Sloss and Dufty, 1980; Frazer *et al.,* 1996).

Using Sharma's modified Schaffer's technique the detorsion rate in Indian buffaloes was 90% in comparison to 40% success rate achieved by Schaffer's method (Singh and Nanda, 1996; Srinivas *et al.,* 2007). In present study, success rate using Sharma's modified Schaffer's technique was 51.22 % (21/41) (Table 1). The use of Sharma's modified Schaffer's technique improves the success rate, with up to 100% of attempted cases being corrected (Purohit *et al.,* 2013; Singh *et al.,* 2015; Mane and Bangre*,* 2015). If the torsion has not been relieved after 3 to 5 attempts then surgery is indicated (Sloss and Dufty, 1980; Roberts, 1986; Purohit *et al.,* 2011).

In addition, uterine torsion was successfully corrected in 63.63% (35/55) cases. The failure to roll twisted uterus could be attributed to adhesions (Luthra and Khar, 1999; Purohit *et al.,* 2011) with other visceral organs. Finally, failure to untwist the uterus necessitated a Caesarean section in 36.36% (20/55) of total cases. Results revealed failure to detort one case with higher degree of uterine torsion (>360°) rather than with 180°-

Table 1 : Treatment outcomes in buffaloes suffering from uterine torsion

Method of Rolling	No. of Roll	n	Successful rolling	Unsuccessful rolling
Simple Rolling of the dam (n=14)	1-2 rolls	9/14 (64.28 %)	9/9 (100%)	0 (0%)
	>2 rolls	5/14 (35.71 %)	5/5 (100%)	0 (0%)
By using Sharma's Modified Schaffer's technique (n=41)	1-2 rolls	11/41 (26.82%)	9/11 (81.81%)	2/11 (18.18%)
	>2 rolls	30/41 (73.17%)	12/30 (40.00%)	18/30 (60.00%)

Table 2 : Relationship between degree of torsion and success rate of rolling the dam

Degree of torsion	Simple rolling				Sharma's modified Schaffer's technique			
	1 – 2 roll		>2 Roll		1– 2 roll		>2 Roll	
	S	US	S	US	S	US	S	US
90-180˚ (27)	6 (22.22%)	0	4 (14.81%)	0	7 (25.92%)	0	6 (22.22%)	4 (14.81%)
180-360˚ (27)	3(11.11%)	0	1 (3.70%)	0	2 (7.40%)	2 (7.40%)	4 (14.81%)	15 (55.55%)
>360˚ (1)	0	0	0	0	0	0	0	1 (100%)
Total (55)	**9**	**0**	**5**	**0**	**9**	**2**	**10**	**20**

S: Successful; US: Unsuccessful

360°degree (n=15/27; 55.55%) and 90-180°degree torsion (n=4/27; 14.81%) (Table 2; Fig. 1). Similar results were reported by Amer *et al.*, 2008.

The duration of torsion had a significant effect on in the likelihood that cervix would be completely dilated subsequent to detorsion (Ghuman, 2010). In the present study, the cervix was found open after detorsion in 42.86% (15/35) cases, cervix was opened by manipulation in 40.00% (14/35), but only 17.14% (6/35) cases required medication to deliver the buffalo calf (Table 3). Live fetus induces uterine contractions and helps to achieve complete dilatation of cervix (Breeveld *et al.,* 2003). Thus, viability of fetus at the time of uterine detorsion has a major impact on the post-detorsion likelihood of complete cervical dilatation (Frazer *et al.,* 1996; Honparkhe *et al.*, 2009).

Table 3 : Cervical findings after successful rolling

Parameters	No.	Percentage
Animals detorted	**35**	**100.00%**
Cervix found opened after detorsion	15	42.86%
Cervix opened by manipulation	14	40.00%
Cervix opened after medication	6	17.14%

Prompt diagnosis and correction of uterine torsion provide a favorable prognosis for both the fetus and the dam (Roberts, 1986; Noakes *et al.,* 2009). Delay in diagnosis almost invariably results in the delivery of a dead fetus, since hypoxia can result from placental separation even in the presence of unruptured membranes (Noakes *et al.,* 2009). A delay of only 2 to 3 hours

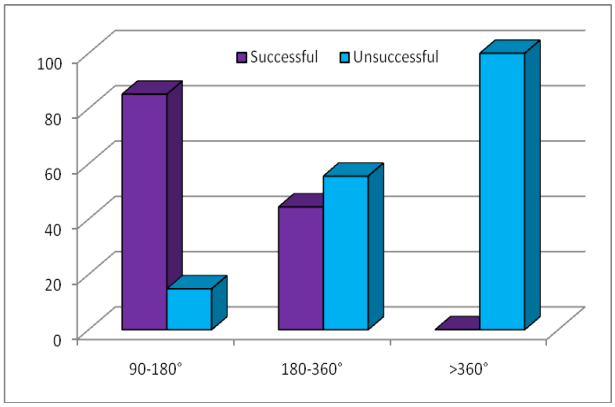

Fig. 1: Relationship between degree-of-torsion, with successful and unsuccessful rolling.

may result in the death of the fetus. There was poor prognosis for fetal survival in the present study, with only 09.09% (5/55) of the buffalo calves being delivered alive (Table 4). The results are in agreement with the findings of previous study (Jeengar *et al.*, 2015) where survival rate of buffalo calves was about 4%. The overall maternal survival rate in the present study was 89.09% (49/55) (Table 4). High dam survival rates (from 67% to 97%) were also seen in previous studies (Karthick *et al.,* 2015; Mane and Bhangre, 2015; Devender *et al.,* 2016). In the present study there was a greater proportion of male (n=32/55; 58.18%) to female fetus (n=23/55; 41.82%) (Table 4), which is in agreement with the studies of Jeengar *et al.* (2014), Karthick *et al.* (2015), Mane and Bhangre (2015) and Devender *et al.* (2016).

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Table 4 : Survivability of dam and fetus and sex percentage

Status of dam and fetus	Number	Live	Dead
Survival rate of dam in Vaginal delivery	35	33 (94.28 %)	2 (5.71 %)
Survival rate of dam in Cesarean section	20	16 (80.00 %)	4 (20.00 %)
Survival rate of dam overall	55	49 (89.09 %)	6 (10.91 %)
Survival rate of fetus	55	5 (09.09 %)	50 (90.91 %)
Sex of fetus	55	Male	Female
		32(58.18%)	23(41.81%)

Conflict of Interest:

The authors have no conflict of interest.

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