



Prevalence of Uterine Torsion and Its Management in Buffaloes

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Abstract

This case study discussed the successful method of management of buffalo uterine torsion. A number of 25 buffaloes with showing colic were taken suspected for uterine torsion at the Clinics of veterinary gynaecology and obstetrics, CVAS, Bikaner. Uterine torsion was diagnosed by per rectal and per vaginal examinations. Priorly, we used plank method for manage torsion in buffaloes. Eighty percent buffaloes were successfully corrected by this method. 1-2 rolls were sufficient to detort in 60% buffaloes. After detorsion most cases were accompanied with closed or insufficient dilated (48%) than dilated or open cervix (32%) which were altered after drug therapy into opened (64%) and indilated cervix (16%). Caesarean section was needed in 36% cases including failed cases of detorsion by rolling (20%) and indilated cervix (16%) after successful rolling. After long-term follow-up, the study reported 88% and 4% survival rate for buffaloes and fetus, respectively in uterine torsion cases. On the basis of this study it was concluded that rolling with plank method is a satisfactory technique to detort the uterus.

Keywords: Uterine torsion, Buffaloes, Detorsion, Caesarean section, Fetal Mortality, Maternal mortality.

Unfortunately, there are several conditions following successful conception which affect the normal progression of pregnancy and parturition adversely, and uterine torsion

is a major condition affecting buffaloes during late pregnancy (Foud and El-Sawaf, 1964; Verma *et al.* 1974; Gupta *et al.* 1981). Torsion of the uterus reportedly constitutes about 53-83% of the dystocia in buffaloes presented at the referral hospitals (Vasishta, 1983; Malhotra, 1990; Singh, 1991; Prabhakar *et al.* 1994; Purohit and Mehta, 2006; Srinivas *et al.* 2007; Purohit *et al.* 2011a; Purohit *et al.* 2011b; Purohit *et al.* 2012). Uterine torsion occurs in a pregnant uterine horn and is defined as the twisting of the uterus on its longitudinal axis (Purohit *et al.* 2011a).

Expulsion of the fetus is impossible unless the condition is corrected, and circulatory disturbances can result in death of both the fetus and dam if a prompt diagnosis is not made (DeBruin, 1910). 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 the clinical management and outcome of uterine torsion cases in referral hospital.

In present study rolling with plank method of detorsion was used preferably over Caesarean section in buffaloes. The rolling of the dam is the most popular method of correction (Noakes *et al.* 2001). Rolling of the buffalo is indicated in recumbent cases, as well as when the fetus cannot be reached or when there is a severe degree of torsion in parturient animals (Roberts, 1986; Sloss and Dufty, 1980; Arthur *et al.* 1989). The use of a plank fixed over the flank of a cast animal improves the success rate, with up to 90% of attempted cases being corrected (Sloss and Dufty, 1980). In some cases, the failure to unroll a twisted uterus can be attributed to adhesions (Luthra and Khar, 1999) so there is need of Caesarean section in animals but it has many disadvantages, including a high risk of infection, injury to internal organs and blood loss. Other disadvantages are that the recovery time is longer after Caesarean section and the site of incision becomes a weak spot so there is an increased chance of uterine rupture in future pregnancies.

Materials and Methods

The present investigation was conducted on 25 buffaloes presented with varying degrees of uterine torsion at Clinics of Veterinary Gynaecology and Obstetrics, CVAS, Bikaner with a history of dystocia or due to a general medical problem like colic, straining or reduced food intake. Rectal and vaginal examinations were done to diagnose uterine torsion. In addition to this survival of fetus, postoperative recovery and reproductive health of the buffaloes were also recorded.

After confirmation of uterine torsion on per rectal and per vaginal examination, all the 25 buffaloes were subjected to rolling for detorsion. Caesarean section was done in unsuccessful rolling. Sufficient fluid replacements, antibiotics and dexamethasone were administered to affected animals depending upon the general condition.

Rolling using plank

Detorsion was attempted in all 25 buffaloes with uterine torsion by rolling in lateral recumbency in the direction of torsion and the front and hind legs were secured separately. Dam rotated to the same degree and direction to which the uterus has rotated, keeping the fetus fixed by fixing uterus with a plank (length: 10 feet, width: 1 feet and thickness: 1 inch) or Schaffer's method (Ghuman, 2010). The plank was placed on the upper paralumbar fossa of dam in an inclined manner with lower end on ground. The animal was rolled over on to its back. The front and hind legs were pulled up and over the recumbent dam. While rolling, plank was anchored by 1-2 medium weight assistants who stood still upon the lower end of plank and another assistant moved on the plank. An additional assistant modulated the pressure on the plank by pressing the upper end of plank.

After each roll, effectiveness of roll was judged by transvaginal/ transrectal examination. If the roll was successful, disappearance of the vaginal spirals or rectal pouch could be immediately palpated and a gush of discharge appeared through the vagina. If the roll was not successful, then whole procedure was repeated with 3 rolls at the maximum.

In case of insufficient dilated cervix, drug combination of estradiol valerate (100 mg) and PGF₂α (500 µg) was given to affected animals and waited for a day. Now in case of either unsuccessful rolling or indilation of cervix, caesarean was performed.

Caesarean section

Caesarean section was required in 9 buffaloes including 5 unsuccessful cases of detorsion and in 4 indilated cervix cases. Laparohysterotomy was performed in right lateral recumbency at oblique ventrolateral approach after aseptic preparation of the area immediately above the arcus cruralis as per previously prescribed (Purohit and Mehta, 2006; Purohit *et al.* 2012; Purohit *et al.* 2013).

Incision line was infiltrated with 2% Lignocain hydrochloride (90-120 ml) in the form of linear infiltration at the left ventro oblique site. A 20-25 cm long incision was made through the skin, subcutaneous tissue, abdominal muscles and the peritoneum sequentially. The omentum was displaced anteriorly or incised and the uterus was incised over fetal extremity between the rows of caruncles. It was packed round with sterile drapes. Fetal membranes were punctured to allow escape of fetal fluids and the fetus and fetal membranes were then removed. The uterus and abdominal cavity were rinsed with sterile normal saline solution. The uterus was sutured using absorbable suture material chromic catgut No. 2 (Ethicon, India) employing double layers of Lambert and Cushing sutures. Subsequently, abdominal incision was closed in two layers of peritoneum and muscles separately. Skin was closed with cotton thread.

Antibiotics (amoxicillin and cloxacillin combination-Intamox, @ 4.5 gm total dose) were administered for 5 days. Non steroidal anti-inflammatory drug (Meloxicam @

0.3 mg/kg body weight) was continued for 7 days. Serakind bolus (seratopeptidase), 2 gm BID daily, was administered orally for 7 days. Local antiseptic dressing with 5% povidone iodine (betadine) was done for a week. Fluid replacement, liver tonics were administered as per requirement.

Results and Discussion

In the present study rolling was successful in 80% buffaloes for correcting the uterine torsion (Table 1). This finding is agreed with the study of Nanda *et al.* (1991) who found similar result. 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.* 2011a). In a previous study, in spite of repeated rolling, caesarean section had to be performed (Cergoli *et al.* 1999; Murty *et al.* 1999; Bellows and Lammoglia, 2000; Purohit *et al.* 2013). The failure to roll twisted uterus could be attributed to adhesions (Luthra and Khar, 1999; Purohit *et al.* 2011a) with other visceral organs.

Table 1: Treatment outcomes in buffaloes suffering from uterine torsion

		n (%)	Successful rolling	Unsuccessful rolling
Rolls given for detorsion	1-2 rolls	15 (60%)	15 (60%)	0 (0%)
	>2 rolls	10 (40%)	5 (20%)	5 (20%)
Delivery passage for fetus	Vaginal delivery	16 (64%)		
	Caesarean section	9 (36%)		
Survival rate of dam	Live	22 (88%)		
	Dead	3 (12%)		
Survival rate of fetus	Live	1 (4%)		
	Dead	24 (96%)		

According to various authors, the cervix is incompletely dilated following 18% to 52% of successful detorsions (Morten and Cox, 1968; Pearson, 1971; Manning *et al.* 1982; Malhotra, 1990; Frazer *et al.* 1996; Aubry *et al.* 2008). In most of these cases, vaginal delivery is impossible and a caesarean section has to be performed. In present study, the cervix failed to dilate properly in half of the uterine torsion cases (12/25), but only 4 (16%) of those cases required a cesarean section to deliver the buffalo calf (Table 2). The duration of torsion had a significant role in the likelihood that cervix would be completely dilated subsequent to detorsion (Ghuman, 2010) and this was also confirmed by the previous studies (Dhaliwal *et al.* 1991; Prabhakar *et al.* 1995; Honparkhe *et al.* 2009). Uterine contractions induced by live fetus help 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). In successfully detorted bovines, non-

hormonal and hormonal approaches can be applied to achieve complete cervical dilatation followed by fetal delivery (Ghuman, 2010). A successfully detorted buffalo diagnosed with hard cervix and dead fetus should be immediately subjected to caesarean (Honparkhe *et al.* 2009).

Table 2: Cervical findings after successful rolling

Condition of cervix	(Before drug therapy) n (%)	(After drug therapy) n (%)
Fully dilated or open	8 (32%)	16 (64%)
Incomplete dilated or closed	12 (48%)	4 (16%)
Total	20 (80%)	20 (80%)

In 16% of total cases there was failure of cervical dilatation after successful rolling where the only way of therapy was caesarean section. In addition, after the torsion was corrected (80%); several hours allowed for full dilatation of the cervix to occur. Finally, failure to untwist the uterus (20%) or closed cervix after correction (16%) necessitated a caesarean section in 36% of total cases. According to various authors, the cervix was incompletely dilated following 20% to 52% of successful detorsions (Morten and Cox, 1968; Pearson, 1971; Frazer *et al.* 1996). In previous similar studies caesarean section was reported to range from 11 to 26.5 % (Messervy *et al.* 1956; Rasbech, 1957; Wright, 1958; Arthur, 1966; Manning *et al.* 1982; Baker, 1988; Arthur *et al.* 1989). But in a study by Pearson (1971), 81% of the cases were managed by caesarean section, with 47% (64/137) of the surgeries being the treatment of choice.

Prompt diagnosis and correction of uterine torsion provide a favorable prognosis for both fetus and dam (Roberts, 1986; Arthur *et al.* 1989). 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 (Sloss and Dufty, 1980; Arthur *et al.* 1989; Frazer *et al.* 1996; Noakes *et al.* 2009). Once the fetal fluids have been released the duration of fetal viability is markedly reduced (Pearson, 1971; Arthur *et al.* 1989). Amount of uterine vascular compromise is definitely a factor (Arthur *et al.* 1989; Noakes *et al.* 2009). A delay of only 2 to 3 hours may result in the death of the fetus (Pearson, 1971). There is extremely poor prognosis for fetal survival in present study, with only 4% of the buffalo calves being delivered alive as shown in table 1. The results are in agreement with the findings of previous study (Purohit *et al.* 2011a) where survival rate of buffalo calves was about 6%. In the previous studies from 21% to 40% of the fetus were delivered alive in uterine torsion cases (Pearson, 1971; Sloss and Dufty, 1980; Frazer *et al.* 1996; Ali *et al.* 2011). A high fetal survival rate (from 50% to 75%) was also reported in some studies (Manning *et al.* 1982; Fabaro, 1998; Kumbhar *et al.* 2011). It has been suggested that, the condition of the fetus appears to be more influenced by the duration of the condition rather than the severity of the torsion (Craig, 1930).

The maternal survival rate in present study was 88% as shown in table 1. High dam survival rates (from 67% to 97%) were also seen in previous studies (Pattabiraman *et al.* 1979; Frazer *et al.* 1996; Luthra and Khar, 1999; Matharu and Prabhakar, 2001; Srinivas *et al.* 2007; Ali *et al.* 2011). Authors also reported 100% survival rate of dam in uterine torsion cases (Pearson, 1971; Kumbhar *et al.* 2011). Survival of torsion affected buffaloes depends upon the severity of vascular compromise that makes uterus friable, duration of uterine torsion, correct diagnosis followed by judicious manipulation and patency of the cervix dictate the severity of fetal putrefaction, and thus the likelihood of fatal maternal toxemia (Sloss and Dufty, 1980; Arthur *et al.* 1989; Noakes *et al.* 2001; Drost 2007). Maternal recovery rates should remain high unless severe toxemia or necrosis of the uterus has developed (Roberts, 1986; Arthur *et al.* 1989). Mortality rates ranged from 5 to 18% depending on whether the study was based on field or hospital cases (Sloss and Dufty, 1980; Roberts, 1986).

Conclusion

On the basis of this study it is concluded that rolling with plank method is a satisfactory technique to detort the uterus and deliver the fetus subsequently. There is high dam survivability. Fetal survivability, however, is poor. Delay in detorsion will cause adhesion of ruptured uterus with other visceral organs and laparotomy will be there only the option. Non surgical method for detorsion is safe, economical, easy to handle and effective on field condition. Attention of the veterinarian must be directed to treat the case as soon as possible with considering it as an emergency case.

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