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Uterine Torsion in Buffaloes: Prevalence, Risk Factors, Fetal Outcome and Clinical Management

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ABSTRACT

The present study was conducted on graded Murrah buffaloes diagnosed with uterine torsion during the period from July to December, 2025 at the Department of Veterinary Gynaecology and Obstetrics, NTR College of Veterinary Science, Gannavaram, Andhra Pradesh, India to evaluate the prevalence, risk factors and fetal outcome in buffaloes affected with uterine torsion. A total of 63 dystocia cases presented to the veterinary hospital were investigated. Among these, uterine torsion constituted 47 cases (74.60%), indicating it as the major cause of dystocia. A higher occurrence of torsion was noted in pluriparous buffaloes (59.57%) with most cases occurring at term (78.72%). Right-sided torsion was most common (93.62%) and the majority of cases involved post cervical torsion (82.98%). Severe torsion (>270°) was recorded in 44.68% of cases and most cases were presented for treatment between 24 and 48 hrs after the onset of clinical signs (46.81%). Fetal examination revealed anterior longitudinal presentation in all cases (100%), with a slightly higher proportion of male calves (52.50%). However, fetal mortality was high at the time of calving (65.00%). Detorsion was attempted using the modified Schaffer's rolling method, which resulted in successful correction in 41 out of 45 treated cases, yielding a success rate of 91.11%. The study highlighted that uterine torsion was a major contributor to dystocia in buffaloes and emphasize that delayed presentation for treatment markedly reduced the success of detorsion and survival of both dam and calf.

KEYWORDS: Prevalence, risk factors, fetal outcome, buffaloes, uterine torsion

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1. INTRODUCTION

Uterine torsion is defined as the rotation of the gravid uterus along its longitudinal axis and it is a common cause of dystocia in many domestic animal species. However, its occurrence varies between species due to differences in uterine muscle strength, anatomical position and the nature of supporting ligaments or mesenteric attachments of the uterus (Noakes et al., 2019). Among these species, buffaloes are more frequently affected than cattle, making uterine torsion a major maternal cause of dystocia in buffaloes (Purohit et al., 2013). This higher incidence in buffaloes has been attributed to differences in uterine muscle tone, anatomical structure and the supporting uterine ligaments that help maintain uterine stability. These structural characteristics make the gravid uterus more prone to displacement, especially during the later stages of pregnancy (Purohit et al., 2011). The development of uterine torsion is influenced by several predisposing factors. Parity is an important determinant, as pluriparous buffaloes are more frequently affected, particularly at full-term gestation (Amin et al., 2011). Other contributing factors include increased fetal size, excessive fetal activity, sudden movements, slipping and abrupt changes in posture. Environmental conditions such as poor flooring, overcrowding and stress may further increase the risk (Jeengar et al., 2014). Previous studies have reported that uterine torsion accounts for approximately 52–83% of dystocia cases in buffaloes presented to veterinary hospitals (Srinivas et al., 2007; Chandore et al., 2013; Mustapha et al., 2020; Yadav et al., 2021), indicating its major clinical importance. Uterine torsion is a critical obstetrical disorder that negatively impacts both the dam and fetus. It has been reported that survival rates of both the dam and fetus decrease as the duration of torsion increases (Singh et al., 2020). The condition compromises uterine blood flow, leading to reduced oxygen supply to the fetus and resulting in fetal hypoxia and death if not treated promptly (Amer et al., 2008; Ghuman, 2010). Early diagnosis and prompt treatment can result in high survival rates of the dam and fetus, depending on the duration and degree of torsion (Pateliya et al., 2019). Furthermore, the future reproductive performance of the dam is influenced by the severity of torsion, duration before correction and the method used for treatment (Ramteke and Razzaque, 2019). Uterine torsion is therefore considered an obstetrical emergency that requires immediate clinical attention. The prognosis largely depends on how quickly the condition is identified and managed as well as the time of intervention. Both the degree and duration of torsion from the time of occurrence to presentation significantly influence treatment outcomes (Ibrahim et al., 2022). Accurate assessment of the degree and direction of torsion helps in selecting an appropriate correction method (Purohit et al., 2011). Among various treatment methods, the Modified Schaffer's rolling technique has been widely accepted as a simple, economical and effective approach for detorsion under field conditions. However, the success of the Modified Schaffer's technique is influenced by factors such as the duration of torsion, degree of rotation, viability of the fetus and the general health status of the animal at presentation. Cases presented late or with severe torsion often show reduced success rates and may require surgical intervention such as cesarean section. In addition, supportive therapy including fluids, antibiotics and anti-inflammatory drugs is important for stabilizing the animal and enhancing recovery after detorsion (Amer et al., 2008; Ghuman, 2010). Considering the significant clinical and economic importance of uterine torsion in buffaloes, the present study was undertaken to determine its prevalence, identify associated risk factors, evaluate fetal survival and assess the effectiveness of the Modified Schaffer's method in clinical management.

2. MATERIALS AND METHODS

2.1. Source of study

The present study was conducted on graded Murrah buffaloes diagnosed with uterine torsion during the period from July, 2025 to December, 2025 at the Department of Veterinary Gynaecology and Obstetrics, NTR College of Veterinary Science, Gannavaram, Andhra Pradesh, India.

2.2. Animal selection

The present investigation was carried out on 47 pregnant buffaloes presented with clinical signs suggestive of uterine torsion, including restlessness, frequent lying down and getting up, anorexia and abdominal kicking. A detailed history was recorded for each animal, including parity, stage of gestation, duration since the onset of clinical signs and any treatment administered prior to presentation of animal at the hospital. All affected buffaloes were subjected to a through obstetrical examination using both transvaginal and transrectal approaches to determine the direction and degree of uterine torsion. Based on the clinical assessment, 45 buffaloes were selected for correction using the Modified Schaffer's rolling method, whereas 2 cases with a history of more than 72 hrs and severe bloat were recommended for caesarean section. Prior to the detorsion procedure, buffaloes were administered supportive therapy depending on their general clinical condition, which included fluid therapy, analgesics, antihistamines and styptic.

3. RESULTS AND DISCUSSION

The findings of the present study revealed that uterine torsion accounted for 74.60% (47/63) of the total dystocia cases, indicating that it was the major cause of dystocia in buffaloes. Similar observations were reported by

Ghuman (2010), Chandore et al. (2013) and Mustapha et al. (2020), who recorded uterine torsion in 52% to 83% of dystocia cases. The higher susceptibility of buffaloes might be attributed to their anatomical characteristics, including a pendulous abdomen, relatively poor abdominal muscle tone and elongated uterine ligaments, which reduce uterine stability during pregnancy and predispose the gravid uterus to torsion (Pateliya et al., 2019). The predisposing factors associated with uterine torsion in graded Murrah buffaloes observed in the present study were presented in Table 1.

The incidence of uterine torsion was observed more frequently seen in pluriparous buffaloes (59.57%) compared with primiparous animals (40.43%). Similar findings were reported by Solanki et al. (2012) and Mustapha et al. (2020), who documented an incidence ranging from 56.00% to 66.66% in pluriparous buffaloes. The increased susceptibility in pluriparous animals might be associated with reduced tone of the uterine broad ligaments and increased abdominal space with advancing age, which could decrease uterine stability and predispose the gravid uterus to torsion (Srinivas et al., 2007).

Most of the uterine torsion cases occurred at full term (78.72%), whereas only 21.28% were observed in pre-term animals. Comparable findings were reported by Murty et al. (1999) and Matharu and Prabhakar (2001), who recorded the occurrence of uterine torsion during term pregnancy ranging from 74.47% to 81.30%. The higher prevalence near parturition might be attributed to increased fetal activity and abrupt movements of the dam, which predispose the gravid uterus to torsion (Srinivas et al., 2007).

Evaluation of the direction of torsion indicated that most cases were right-sided (93.62%) compared with left-sided torsion (6.38%). Similar findings were reported by Shiv et al. (2000), Srinivas et al. (2007) and Yadav et al. (2021), who observed right-sided torsion ranging from 91.47% to 95.71%. The higher occurrence of right-side torsion might be attributed to the relatively weaker support provided by the right broad ligament and the presence of the rumen on the left side of the abdomen, which restricted uterine movement towards the left side (Purohit and Gaur, 2014).

The results also showed that post-cervical uterine torsion was more common (82.98%) than pre-cervical torsion (17.02%). Similar findings were reported by Singh et al. (2015), Yadav et al. (2021) and Kumar et al. (2023), who recorded 76.44% to 88.40% of cases as post-cervical torsion. The higher frequency of post-cervical torsion may be due to structural weakness in the anterior vaginal region and limited ligamentous support in that area (Jeengar et al., 2015).

The degree of uterine torsion observed in the present study revealed that severe torsion (>270°) was predominant

Table 1: Predisposing factors associated with uterine torsion in graded murrah buffaloes

Sl. No.	Parameter	Number	%
I. Parity of animal			
1	Pluriparous	28	59.57
2	Primiparous	19	40.43
	Total	47	100.00
II. Gestational length			
1	Pre-term	10	21.28
2	At term	37	78.72
	Total	47	100.00
III. Direction of uterine torsion			
1	Right-sided	44	93.62
2	Left-sided	3	6.38
	Total	47	100.00
IV. Anatomical site of the torsion			
1	Post-cervical	39	82.98
2	Pre-cervical	8	17.02
	Total	47	100.00
V. Degree of twist			
1	>270	21	44.68
2	180–270	16	34.04
3	<180	10	21.28
	Total	47	100.00
VI. Duration of torsion			
1	< 24 hrs	9	19.15
2	24–48 hrs	22	46.81
3	> 48 hrs	16	34.04
	Total	47	100.00
VII. Fetal presentation patterns			
1	Anterior longitudinal presentation	40	100
2	Posterior longitudinal presentation	0	0
	Total	40	100.00
VIII. Calf sex			
1	Male	21	52.50
2	Female	19	47.50
	Total	40	100.00
IX	Calf viability		
	Live	14	35.00

Table 1: Continue...

Sl. No.	Parameter	Number	%
	Dead	26	65.00
	Total	40	100.00

(44.68%) followed by moderate torsion (>180°–270°) in 34.04% and mild torsion (<180°) in 21.28% of cases. These findings were comparable with the observations of Thangamani et al. (2019) and Kumar et al. (2023) who also reported a higher prevalence of severe degree torsion. The higher proportion of severe torsion near term might be associated with reduced fetal fluid, decreased uterine size and reduced uterine tone, which could increase fetal movement and predispose the gravid uterus to severe torsion (Purohit and Gaur, 2014).

Most cases of uterine torsion were presented within 24–48 hrs (46.81%), followed by cases presented after 48 hrs (34.04%), and within 24 hrs (19.15%) of onset of clinical signs. These findings were comparable with the observations of Thangamani et al. (2019). Delayed treatment might lead to serious complications such as uterine adhesions, necrosis of the uterine wall, fetal death followed by putrefaction, endotoxemia, dehydration, shock and peritonitis (Matharu and Prabhakar, 2001; Noakes et al., 2001).

The study revealed that 100% of the fetuses born were in anterior longitudinal presentation. Similar observations were reported by Ghuman (2010), indicating that most fetuses in buffaloes with uterine torsion remain in the normal calving presentation.

In the present study, male calves (52.50%) were slightly more common than female calves (47.50%). Comparable findings were reported by Purohit et al. (2013) and Karthick et al. (2015). The slightly higher occurrence of male fetuses might be attributed to their relatively greater fetal weight, which could predispose the gravid uterus to torsion (Ghuman, 2010; Jeengar et al., 2014).

Analysis of fetal outcome revealed that 65.00% of the calves were dead, whereas 35.00% were born alive. Comparable fetal mortality rates were reported by Ali et al. (2011) and Yadav et al. (2023). The high incidence of fetal loss might be attributed to delayed identification and correction of uterine torsion, which could lead to placental detachment and fetal hypoxia, ultimately resulting in fetal death (Noakes et al., 2009).

The Modified Schaffer's rolling technique effectively relieved uterine torsion in 41 out of 45 buffaloes (91.11%). Among these, detorsion was achieved after a single rotation in 9 animals (20.00%), after two rotations in 21 animals (46.67%) and after more than three rotations in 11 animals (24.44%). However, detorsion could not be achieved in 4 cases (8.89%) even after five attempts, and these animals were subsequently recommended for surgical management by caesarean section. The success rate of 91.11% observed in the present study was comparable with earlier reports, where the Modified Schaffer's rolling method achieved success rates ranging from 84.21 to 100% (Matharu and Prabhakar, 2001, Srinivas et al., 2007, Kumbhar et al., 2011, Ramteke and Razzaque, 2019, Singh et al., 2020 and Ibrahim et al., 2022).

4. CONCLUSION

Uterine torsion represented a major obstetrical disorder in buffaloes and prompt diagnosis followed by immediate correction was essential for favorable outcomes. It was more common in pluriparous, full-term and right-sided, post-cervical and severe degree of torsion. Most cases was presented within 24–48 hrs, with anterior fetal presentation and high fetal mortality. The Modified Schaffer's method proved effective and economical, while early intervention improved detorsion success and reduced surgical necessity.

5. FURTHER RESEARCH

Future research should focus on evaluating the influence of management factors such as feeding practices, housing conditions, exercise and body condition score on the occurrence of uterine torsion in buffaloes. In addition, long term studies assessing the reproductive performance of buffaloes following successful detorsion to better understand the impact of uterine torsion on subsequent fertility.

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