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A retrospective study on 294 referral cases of uterine torsion in bovines

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Abstract

A retrospective study on 294 bovines (267 buffaloes and 27 cows) affected with uterine torsion revealed that the incidence was more common in pluriparous buffaloes (90.8%). On detailed obstetrical examination, majority of the cases had uterine torsion greater than 270-360°, right-sided and post-cervical in location. Successful detorsion yielded in per-vaginal delivery of the calves in 240 buffaloes (93%) and 17 cows (65%), of which the majority were delivered in anterior longitudinal presentation. At the same time, the unsuccessful cases were relieved by caesarean section, and very few instances were salvaged due to grave prognosis. The survival rate of the new-born calves was recorded as 23% with a greater proportion being males.

Keywords: Uterine torsion, incidence, site, bovine, pluriparous

1. Introduction

One of the major condition responsible for the maternal dystocia in bovines has been documented as uterine torsion, which is occasionally encountered by the field veterinarians. Uterine torsion is a condition that leads to dystocia during the time of parturition, due to twisting of the gravid horn about its longitudinal axis leading to constriction of the birth canal (Roberts and Hillman, 1973) [18]. In the majority of the cases anterior vagina is involved and twisted spirally leading to stenosis of the birth canal (Roberts, 1986) [17]. It appears that the stage of pregnancy affects the incidence of uterine torsion where the greater number of incidences were observed to be during full term, just before the parturition and more precisely during the second stage of labour (Arthur *et al.*, 1989) [4]. The prognosis of the dam is greatly influenced by a number of variables, including the site, the degree of torsion, and the overall duration of the condition. Uterine torsion is thought to be the most common and complex cause of maternal dystocia in bovines, especially in buffaloes, because it can cause both the dam and fetus to die in delayed instances (Jainudeen, 1986) [7]. The goal of the current retrospective analysis was to document the pattern, type and severity of uterine torsion in cows and buffaloes from coastal Andhra Pradesh that were referred by the field veterinarians.

2. Materials and Methods

The current research was undertaken on 294 referral bovine cases that were referred from the coastal regions of Andhra Pradesh to the Veterinary Clinical Complex, NTR CVSc, Gannavaram, between January 2019 and May 2022. The uterine torsion affected bovines had a history of dystocia or signs like colic, restlessness, straining or reduced feed intake. A thorough per vaginal and per rectal examination was performed to determine the side and site of uterine torsion. All the referred cases were treated with modified Schaffer's method in buffaloes and Schaffer's method in cows for detorsion of the uterus. The incidence of uterine torsion in relation to gestational stage and dam parity was noted. After the torsion was relieved, the fetus' presentation and position were examined, and the calves' sex was noted for future investigation.

3. Results and Discussion

In the current investigation, buffaloes had a higher incidence of uterine torsion (90.82%; 267/294) than cattle (9.18%; 27/294) (Table 1). The greater length of the broad ligaments and the existence of a deep, capacious abdomen in buffaloes may be the cause for the increased frequency compared to cows (Singh, 1991) [20].

Out of 294 uterine torsion affected bovines, 107 (36.4%) were primiparous while 187 (63.6%) were pluriparous (Table 1). The higher rate of uterine torsion in pluriparous animals was consistent with other research that had suggested that

pluriparous animals were more susceptible to uterine torsion (Matharu and Prabhakar, 2001; Karthick *et al.*, 2015; Thangamani *et al.*, 2019 and Singh *et al.*, 2020). [10, 9, 23, 19]. Most of the animals in the current study were referred at full term (92%), as previously reported by Jeengar *et al.* (2015) [8], Karthick *et al.* (2015) [9] and Singh *et al.* (2020) [19]. It was opined that, during full term gestation, vigorous fetal movements were increased, making the gravid uterine horn unstable (Arthur, 1966) [3], thus, predisposing bovines to uterine torsion at term (Noakes, 2001 and Ghuman, 2010) [13, 6].

Table 1: Pattern, type and severity of uterine torsion in bovines and presentation of the calves

		Buffaloes (267)		Cows (27)		Total (294)	
		Number	%	Number	%	Number	%
Parity	Primiparous	100	37.5	7	25.9	107	36.4
	Pluriparous	167	62.5	20	74.1	187	63.6
Stage of gestation	Pre term	22	8.2	2	7.4	24	8
	Full term	245	91.8	25	92.6	270	92
Side of torsion	Right	256	95.9	18	66.7	274	93.2
	Left	11	4.1	9	33.3	20	6.8
Site of torsion	Pre-cervical	31	11.6	5	18.5	36	12.2
	Post cervical	236	88.4	22	81.5	258	87.8
Degree of torsion	90-180 ^o (mild)	41	15.36	4	14.82	45	15.31
	>180-270 ^o (moderate)	78	29.21	9	33.33	87	29.59
	>270-360 ^o (severe)	148	55.43	14	51.85	162	55.10
Presentation of the calf	Anterior longitudinal	236	98.33	17	100	253	98.44
	Posterior longitudinal	4	1.67	0	0	4	1.56

The overall incidence of right sided uterine torsion in buffaloes and cows was recorded as 93.2% (274/294), while the left sided was 6.8% (20/294). These findings were in commitment with the previous reports made by Srinivas *et al.* (2007) [22], Karthick *et al.* (2015) [9], Naik (2016) [12], Thangamani *et al.* (2019) [23] and Singh *et al.* (2020) [19], while contradicts with the reports made by Solanki *et al.* (2012) [21] and Abd-Albariet *et al.* (2013) [1], who recorded a lower occurrence of right sided uterine torsion. The location of the rumen on the left side, the preponderance of right horn pregnancies, and the weak or lack of a muscular fold on the right uterine broad ligament all may contribute to the higher frequency of right-sided uterine torsion in buffaloes (Ghuman, 2010 and Purohit and Gaur, 2014) [6, 14].

The site of occurrence in majority of the cases in the current investigation was post-cervical (87.8%) while in lesser cases it was pre-cervical (12.2%). These findings were consistent with the previous reports by Purohit *et al.* (2013) [16], Karthick *et al.* (2015) [9] and Thangamani *et al.* (2019) [23] who reported an 80-88.46% incidence of post-cervical uterine torsion, and interestingly, Srinivas *et al.* (2007) [22] and Naik (2016) [12] reported greater occurrence of 90%, compared to the present study. Ghuman (2010) [6] opined that membranous nature of the vagina might be the reason for the greater occurrence of post-cervical uterine torsion which was also noticed in the present investigation.

The findings of the present study revealed that occurrence of mild (90-180^o) and moderate (>180-270) degrees of torsion are very less compared to severe degree (>270-360) (15.31% vs. 29.59% vs. 55.10%, respectively). These observations were consistent with the earlier studies (Jeengar *et al.*, 2015; Naik, 2016; Zaher *et al.*, 2017; Nagaraju, 2018; Thangamani *et al.*, 2019 and Singh *et al.*, 2020) [8, 12, 25, 11, 23, 19]. In full-term pregnant buffaloes, the gravid uterus is highly unstable and twists on its longitudinal axis as the bubaline amnion is fused with the chorio-allantois at numerous points along the uterine wall. Furthermore, the gravid uterus may have rotated and

undergone a larger degree of uterine torsion as a result of the excessive fetal movements throughout the late gestation (Ghuman, 2010 and Purohit and Gaur, 2014) [6, 14].

Detorsion by Schaffer's method, was unsuccessful in 10 animals (3.4%) (9 buffaloes and 1 cow) and were salvaged. Among the other 284 animals, pervaginal delivery of the calves after detorsion was possible in 240 buffaloes (93%) and 17 cows (65%) while 27 animals were corrected by caesarean section (Fig 1). After detorsion at per-vaginal delivery greater proportion of calves presented were in antero-longitudinal presentation (98.44%) while only 4 (1.56%) calves were in postero-longitudinal presentation. The current findings were consistent with earlier reports by Erteld *et al.* (2012) [5]; Naik (2016) [12]; Nagaraju (2018) [11] and Thangamani *et al.* (2019) [23] which stated that, though the anterior longitudinal presentation was expected to be normal during parturition, the occurrence of uterine torsion might be culminated by the active fetal movements particularly those of fetal forelimbs.

The survival rate of calves delivered after detorsion was recorded as 23% (65/284) and out of all those new born calves the greater proportion of them were males (64%) while female calves (102/282) were lesser. These findings were consistent with the earlier findings of Ali *et al.* (2011) [2], Purohit *et al.* (2011) [15], Jeengar *et al.* (2015) [8] and Singh *et al.* (2020) [19] who who found that the calf survival rate delivered from bovines with uterine torsion varied greatly, ranging from 4 to 56%. According to Ghuman (2010) [6], the degree of torsion had an effect on uterine vascular compromise and therefore calf survival, which was the primary reason for the lower survivability of calves born from bovines afflicted by uterine torsion. The increased percentage of male calves (64%) found in this study was consistent with prior findings from Jeengar *et al.* (2015) [8], Thangamani *et al.* (2019) [23] and Singh *et al.* (2020) [19]. Due to hormonal changes that took place in the later stages of pregnancy and the male fetus's robust activity, which may have been

relatively less in female fetuses, uterine torsion occurs more frequently in male fetuses (Tripathi and Mehta, 2015) [24].

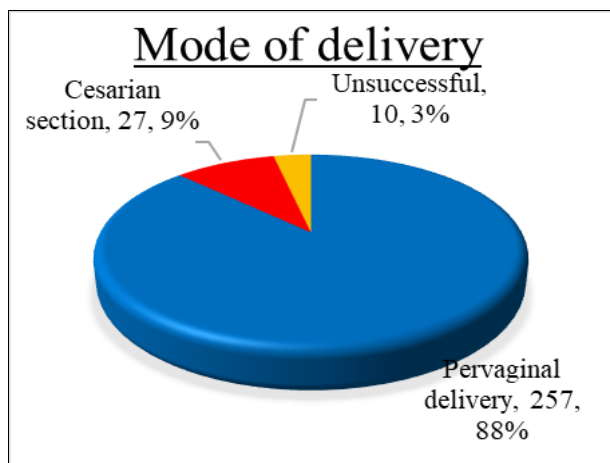


Fig 1: Pictorial representation of mode of delivery of calf after detorsion

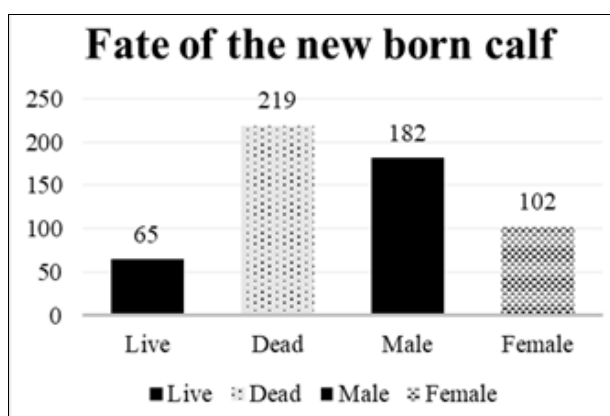


Fig 2: Graphical representation of fate of new born calf after detorsion

4. Conclusion

From the current results of the retrospective investigation it was concluded that the uterine torsion was most common in pluriparous bovines especially at full term with greater incidence in buffaloes compared to cows. Additionally, right-sided and post-cervical uterine torsions were more frequent. Furthermore, uterine torsion typically had a reduced chance of fetal survival.

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