INCIDENCE OF UTERINE TORSION AND ITS OCCURRENCE IN RELATION TO VARIOUS FACTORS IN COWS AND BUFFALOES*

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ABSTRACT

Out of 852 dystocias analysed, the percentage of incidence of uterine torsion in cows and buffaloes was 13.97 and 27.46. The occurrences of uterine torsion in cows and buffaloes in response to parity (19.83 and 31.53 per cent in primiparous and 80.17 and 68.47 per cent in pleuriparous), stage of gestation (91.60 and 92.31 per cent in peripartum and 8.40 and 7.69 per cent in prepartum), side of torsion (72.34, and 91.61 per cent in right side and 27.66 and 8.39 per cent in left side), site of torsion (32.98 and 14.19 per cent in precervical and 67.02 and 85.81 per cent in postcervical), sex of fetus (67.57 and 60.55 per cent in male fetus and 32.43 and 39.45 per cent in female fetus) and livability (45.95 and 46.79 per cent in live fetuses and 54.05 and 53.21 per cent in dead fetuses, respectively) were recorded. The survivability of dam after detorsion in cows, buffaloes and overall survivability was 86.55, 88.46 and 87.82 per cent, respectively. About 49.10 per cent cows and 51.52 per cent buffaloes were affected with 90^0 to 180^0 uterine torsion.

Key words: Incidence, occurrence, uterine torsion, cows, buffaloes

Uterine torsion is one of a major peripartum problem causing dystocia in bovines and it causes heavy economical losses to the farmers due to death of either fetus or dam or both beside impaired lactation (Ghuman, 2010). The etiology and pathogenesis of this condition is inadequately understood and remains open to speculation. Further the incidence of uterine torsion and its occurrence in cows and buffaloes under field level have not been reported in detail. Hence, the present report records the incidences and occurrences of uterine torsion in cows and buffaloes.

The incidence of uterine torsion in cows and buffaloes among the cases of dystocias which were brought to the obstetrics unit of Veterinary College and Research Institute hospital, Namakkal from January 2010 to April 2015 (year wise) were recorded. Further, analysis of the data in percentage was done on uterine torsion in cows and buffaloes to find out its occurrence in relation to parity, stage of gestation, side of torsion, site of torsion, sex of the fetus, livability of the fetus, survivability of the dam and degree of torsion.

The percentages of incidences of uterine torsion among dystocias in cows and buffaloes were 14.01 and 34.39; 14.40 and 28.00; 15.23 and 25.83; 13.56 and 26.55; 17.11 and 28.95 and 6.67 and 16.67 during 2010, 2011, 2012, 2013, 2014 and April 2015, respectively. The total percentages of incidence of uterine torsion in both cows and buffaloes during 2010, 2011, 2012, 2013, 2014 and April 2015 were 48.41, 42.40, 41.06, 40.11, 46.05 and 23.33 per cent, respectively. In all years from 2010 to 2015, there was a high incidence of uterine torsion in buffaloes than in cows. As the number of dystocias increased corresponding increase in the incidence of uterine torsion in cows and buffaloes was observed. Out of 852 dystocias, the percentage of uterine torsion in cows, buffaloes and both was 13.97, 27.46 and

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41.43, respectively. Similar percentage of incidence of uterine torsion in bovines was reported by Amer *et al.* (2008) in buffaloes. However, 52.70 per cent of dystocias were due to uterine torsion in buffaloes (Purohit and Gaur, 2014). A very high incidence of 67 to 83 per cent uterine torsions which resulted in dystocia were also recorded in buffaloes (Srinivas *et al.,* 2007). The higher influence of uterine torsion on the occurrence of dystocias in his study might be due to the fact that most mild forms of the dystocias caused by other etiological factors might had been attended by practicing veterinarian of this area. Further, hilly areas in and around Namakkal district and also slopes in the harvested lands might have caused instability of the gravid uterus while grazing and might resulted in uterine torsion. Brar *et al.* (2008) stated that the broad ligaments of bovines suffering from uterine torsion were thin and had less muscle compared to their counterparts with other types of dystocia. This could be another reason for higher prevalence of uterine torsion in bovine dystocias.

Among the cases of uterine torsion, the incidence of uterine torsion in cows and buffaloes were 28.95 and 71.05; 33.96 and 66.04; 37.10 and 62.90; 33.80 and 66.20; 37.14 and 62.86 and 28.57 and 71.43 in the year 2010, 2011, 2012, 2013, 2014 and April 2015, respectively. It was evident that the buffaloes are highly prone for uterine torsion than cows. It might be due to the small quantity of fetal fluids associated with decrease in size of uterus at end stages of pregnancy and certain destabilizing factors such as weak broad ligament, decreased tone of uterine muscles along with sudden movements of dam and fetus and difference in the genital structures between cows and buffaloes (Purohit *et al.,* 2011), deep capacious abdomen (Roberts, 1986), wallowing habit of buffaloes (Ghuman, 2010) and heavier fetus when compared to cows (Amer *et al.,* 2008).

In the present investigation 80.17 per cent cows and 68.47 per cent buffaloes in pleuriparous stage were affected with uterine torsion. Similar finding was reported by Jeengar *et al.* (2015) but in contrast, Ali *et al.* (2011) stated that the incidence of uterine torsion was higher in primiparous buffaloes. Arthur *et al.* (1989) stated that number of previous pregnancy did not appear to influence of uterine torsion. The higher occurrence of uterine torsion in pleuriparous cows and buffaloes in this study might be due to large abdominal cavity, stretching of pelvic ligaments, loose and long broad ligaments together with loosening of uterine tissue and decreased uterine tone in aged bovines (Jeengar *et al.,* 2015). In this study, 19.83 per cent cows and 31.53 primiparous buffaloes in primiparous stage were affected with uterine torsion. The higher incidence of uterine torsion in primiparous buffaloes than cows might be attributed to the weak broad ligament, heavier fetus, less fetal fluids at the end of gestation, weak uterine tone and wallowing habits (Purohit *et al.,* 2011).

In the current study, uterine torsion occurred around the time of parturition (peripartum) in 91.60 per cent cows and 92.31 per cent in buffaloes. Similar report was made by Jeengar *et al.* (2015). During pregnancy, there was a relatively small increase in the length of broad ligaments causing the uterus to curve around the point of attachment, coming to lie between the rumen, intestines and abdominal wall. This anatomical arrangement might permitted an increased uterine mobility in late gestation and predisposed to development of uterine torsion (Roberts, 1986). Further, vigorous fetal movements (Arthur *et al.,* 1989), instability of the uterus and inordinate dam and fetal movement (Purohit *et al.,* 2011), accidents in advanced pregnancy (Brar *et al.,* 2008) and amount of fetal fluid in relation to size of the fetus (Amer *et al.,* 2008) might favored the occurrence of uterine torsion in peripartum period.

In the present study, 72.34 per cent cows and 91.61 per cent buffaloes suffered from right side uterine torsion. Srinivas *et al.* (2007) also reported similar results in their studies in buffaloes. It was suggested that the rumen might prevented rotation of the uterus to the left side and absence of muscular fold on right broad ligament increased the possibility of right side uterine torsion in buffaloes as explained by Brar *et al.* (2008).

The percentage of cows and buffaloes affected with postcervical uterine torsion in this study was 67.02 and 85.81, respectively. This was in concurrence with the findings of Ali *et al.* (2011), Amin *et al.* (2011) and Jeengar *et al.* (2015) in buffaloes. In contrast to this study, Singh (1991) recorded equal frequency of pre and postcervical uterine torsion in cows whereas higher incidence of 83.60 per cent of pre cervical uterine torsion was recorded by Purohit *et al.* (2011). The probable reason for higher incidence of postcervical uterine torsion of this study could be because the anterior vagina is the weaker point of the bovine genital tract or due to the absence of the muscles in the cervical area of broad ligaments as opined by Jeengar *et al.* (2015).

The present study indicated that pregnancy with male fetus caused more prevalence of uterine torsion in cows (67.57 per cent) and buffaloes (60.55 per cent). This was in accordance with the finding of Amin *et al.* (2011). On contrary, Matharu and Prabhakar (2001) reported male to female calf ratio as 4.4 to 5.5 in buffaloes. The higher incidence of male calves in uterine torsion affected animals in the study might be due to their heavier weight as suggested by Frazer *et al.* (1996).

Almost equal percentages of live (45.95 per cent in cows and 46.79 in buffaloes) and dead fetus were delivered following treatment of uterine torsion from 2010 to April 2015 at our hospital. This was in accordance with the finding of Ghuman (2010). However, Frazer *et al.* (1996) and Ali *et al.* (2011) recorded about 76 to 78 per cent dead fetus following detorsion in buffaloes. It has been suggested that the severity of the twist does not directly affects the survival of the fetus but the amount of uterine vascular compromise was definitely a factor (Frazer *et al.*, 1996). The high rates of live fetal delivery in the present study when compared to the previous reports might be due to the availability of expertise, prompt diagnosis and timely intervention in our clinics as described by Jeengar *et al.* (2015).

From 2010 to April 2015, the survivability rate (Table 2) following detorsion in cows and buffaloes was 86.55 and 88.46 per cent, respectively. This finding was in accordance with the report of Frazer *et al.* (1996) in bovines. However, Amer *et al.* (2008) found the dam survival rate as 69.00 per cent in bovines. Major factor played a role in the survivability of dam might be the time elapsed between the occurrence of torsion and its correction as suggested by Ghuman (2010). The death of the dam in uterine torsion affected buffaloes in this study was attributed to development of uterine edema and ischaemic necrosis which led to endotoxic shock, severe uterine necrosis, fetal putrification, maternal toxemia, dehydration, shock and peritonitis (Matharu and Prabhakar, 2001).

In the current study, almost 50 per cent of the cows (49.10 per cent) and buffaloes (51.52 per cent) had suffered from 90^0 to 180^0 torsion. This was in concurrence with many of the previous reports in bovines (Frazer *et al.*, 1996; Ghuman, 2010 and Ali *et al.*, 2011). In this investigation 31.30 per cent cows and 22.73 per cent in buffaloes were treated for less than 90^0 uterine torsion. Roberts (1986) stated that minor torsion of 45^0 to 90^0 may be deducted during routine pregnancy diagnosis probably may undergo spontaneous correction. The 180^0 to 270^0 torsion in cows (6.87 per cent) and buffaloes (9.09 per cent) found in this study were lesser than the report of Frazer *et al.* (1996) who reported 57 per cent. The uterine torsion of 270^0 to 360^0 diagnosed in cows (6.84 per cent) and buffaloes (10.60 per cent) of this experiment were lower than the observation of Matharu and Prabhakar (2001) who observed 32 per cent in buffaloes affected with 270^0 to 360^0. In this investigation, more than 360^0 uterine torsion was observed in 5.89 per cent cows and 6.06 per cent buffaloes. But, 20 per cent occurrence of above 360^0 uterine torsions was reported in other studies (Frazer *et al.*, 1996). Interestingly in one referred population, 66 per cent uterine torsion was of 360^0 (Jeengar *et al.*, 2015). Three cases of 720^0 and one case of 1080^0 uterine torsion were reported in bovines (Frazer *et al.*, 1996).

It is concluded that the occurrence of uterine torsion was higher in buffaloes when compared to cows in relation to primiparous, peripartum stage, right side twist, post cervical location, female fetus and survivability of the dam.

REFERENCES

Ali, A., Derar, R., Hussein, H.A., Abd Ellah, M.R. and Abdel-Razek, A.K. (2011). Clinical, hematological and biochemical findings of uterine torsion in buffaloes (Bubalus bubalis). *Anim. Reprod. Sci.,* **126:** 168-172.

Amer, H.A., Hashem, M.A. and Bader, A. (2008). Uterine twisting during pregnancy in buffaloes: relationship between clinical findings and biochemical indices. *J. Appl. Biol. Sci.,* **2:** 31–39.

Amin, S.M., Amer, H.A., Hussein, A.E. and Hazzaa, A.M. (2011). Creatine phosphokinase and aspartate aminotransferase profiles and its relation to the severity of uterine torsion in Egyptian buffalo. *Anim. Reprod. Sci.,* **123:** 163-168.

Arthur, G.H., Noakes, D.E. and Pearson, H. (1989). Maternal dystocia: Treatment. Fetal dystocia: Aetiology and incidence. The caesarean operation. In: Veterinary Reproduction and Obstetrics *(Theriogenology)*. London: Bailliere Tindall. pp. 195-310.

Brar, P.S., Saigal, R.P., Nanda, A.S. and Sharma, R.D. (2008). Role of broad ligament in the causation of uterine torsion in dairy buffaloes. *Indian J. Anim. Sci.,* **78:** 940-942.

Frazer, G.S., Perkins, N.R. and Constable, P.D. (1996). Bovine uterine torsion: 164 hospital referral cases. *Theriogenology,* **46:** 739-758.

Ghuman, S.P.S. 2010. Uterine torsion in bovines: a review. *Indian J. of Anim. Sci.,* **80:** 289-305.

Jeengar, K., Choudhary, V., Maharia, S., Vivekanand and Purohit, G.N. (2015). A retrospective study on type and extent of uterine torsion in buffaloes. *Res. J. Vet. Pract.,* **3:** 25-28.

Matharu, S.S. and Prabhakar, S. (2001). Clinical observations and success of treatment of uterine torsion in buffaloes. *Indian J. Anim. Reprod.,* **22:** 45-48.

Purohit, G.N. and Gaur, M. (2014). Uterine torsion in buffaloes: A critical analysis. *Buffalo bulletin,* **33:** 363-378.

Purohit, G.N., Barolia, Y., Shekher, C. and Kumar, P. (2011). Diagnosis and correction of uterine torsion in cattle and buffaloes. *Raksha Tech. Rev.,* **2:** 11-17.

Roberts, S.J. (1986). Diseases and accidents during the gestation period. Diagnosis and treatment various types of dystocia. Injuries and diseases of the puerperal period. In: Veterinary Obstetrics and Genital Diseases *(Theriogenology)*, Woodstock. VT: pp: 230-359.

Singh, P. (1991). Studies on broad ligament in relation to uterine torsion in buffaloes. M.V.Sc., thesis submitted to Punjab Agricultural University, Ludhiana, India.

Srinivas, M., Sreenu, M., Lakshmi Rani, N., Subramanyam Naidu, K. and Devi Prasad, V. (2007). Studies on dystocia in graded murrah buffaloes: A retrospective study. *Buffalo Bulletin,* **26:** 40-45.