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Successful Clinical Management of Dystocia Due to Pre-cervical Uterine Torsion in a Crossbred Holstein Friesian Cow: A Case Report

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Abstract

A crossbred Holstein Friesian cow in sixth parity was presented with the history of completed gestation period and violent straining for three hours without any progress in calving. Gynaecological examination per-vaginum and per-rectum revealed 180^{O} pre-cervical left sided uterine torsion. Caudal epidural anesthesia was applied by injecting 5 ml of 2% lignocaine, and the animal was calmed down with 0.2 ml xylazine (IV) and cast on the side of torsion. Rolling was applied as described by modified Schaffer's detorsion method. After second roll the torsion was completely corrected. A live healthy male calf was delivered by traction. The animal recovered uneventfully.

Keywords: Management, modified Schaffer's method, uterine torsion, crossbred cow

Uterine torsion is the rotation of the gravid horn around its long axis (Sane *et al.* 1982; Rakuljic-Zelov, 2002) which leads to narrowing of the birth canal causing dystocia. Torsion of the gravid uterus in bovine is a common condition encountered by the field veterinarians and has been reported to be one of the major causes of dystocia (Pearson, 1971; Sidiquee and Mehta, 1992; Singh *et al.* 1992). It was first reported in 1766 by

Boutrolle (Fleming, 1930). Mohteshamuddin *et al.* (2014) described uterine torsion is an obstetrical emergency. It is a single most important malady among parturient bovines with high rate of dam mortality (Matharu and Prabhakar, 2001). Uterine torsion is commonly observed in buffaloes, dairy cows and occasionally in beef cows (Sheetal *et al.* 2014). Cows and buffaloes are thought to be more susceptible to uterine torsion given to the uterine instability resulting from dorsolateral attachments of broad ligament (Sloss and Dufty, 1980). Although the process of parturition in cattle and buffalo appears to be similar, but subtle differences are known to be existent in the anatomy and physiology of the birth canal between cows and buffaloes (Kogagali, 2003). As such the incidence of uterine torsion is considered to be higher in buffaloes compared to cows (Purohit *et al.* 2011). In majority of cases the pregnant uterus rotates about its long axis, with the point of torsion being the anterior vagina just caudal to the cervix. This is the post-cervical torsion. Less commonly the point of torsion is cranial to the cervix known as pre-cervical torsion (Roberts, 1986; Jackson, 1995). Pre-cervical torsion is more detrimental to cervix due to severe ischemia of cervical tissue as compared to post-cervical torsion (Honparkhe *et al.* 2009). For the treatment of uterine torsion cases, either of the techniques is being used: per-vaginal rotation of fetus, rolling of dam and caesarean section. The management option needs to be selected judiciously on the basis of general body condition, blood profiles and the feasibility of the technique (Ghuman, 2010).

History and Clinical observations

A nine and a half year old crossbred Holstein Friesian cow having delivered five female calves on last five pregnancies and pregnant for a sixth time was presented with a history of completed gestation period and violent straining and overt abdominal discomfort for three hours without any progress in calving. The cow was alert with no previous history of abdominal discomfort/colic or anorexia. The temperature was normal, however, the pulse and respiratory rate was on higher side. The per-vaginal examination of the cow did not reveal much besides slight left sided spiraling tilt of the anterior/ cranial part of vagina. Upon per-rectal examination the broad ligament on the right side could be found extending onto the left side and the left broad ligament sinking beneath the uterus. The arrangement of broad ligaments and the spiral twist in the uterus just cranial to the cervix that could be appreciated upon rectal examination was suggestive of left sided pre-cervical uterine torsion of over 180^{O}.

Treatment and obstetrical management

The animal was cast on left lateral recumbent position on ground matted with paddy straw. The fore and hind legs were separately secured. Detorsion was performed as per modified Schaffer‘s method. Since wooden plank was not readily available, two separate thin wooden slabs with thickness of about 1.5 inches approximately 10 feet

long and 9 inches wide were tied one upon another and were used to immobilize the uterus while rolling the cow. Mustard oil was used to manage the friction between the plank and the animal's skin. Vaginal examination was performed after each roll to access the degree of detorsion. After two complete rolls fetal fluids started flowing out at the vulva and the vaginal examination revealed complete dilation of cervix. The fetus was observed in posterior longitudinal presentation, dorso-ilial position, with hind legs extended in the birth canal. The fetus was maneuvered into dorso-sacral position and a live male calf was delivered after applying some traction (Fig. 1). The placenta was expelled along with the fetus. Four boluses of intrauterine antibiotic were placed inside the uterus of the cow. Further, the animal was administered intravenously a pint of Calcium Borogluconate and two pints of DNS, besides injections of Melonex (20 ml IV for 3 days), Tribivet (10 ml IV for 3 days) and antihistamines. Also liquid Exapar (100 ml orally for 5 days) was prescribed for enhancing evacuation of uterine exudates and to aid uterine involution. The cow got up by herself within 15 minutes after the calf was delivered. Eventually, the cow recovered uneventfully.

Fig. 1: showing the cow with live male calf after the torsion was relieved

Discussion

The etiology of uterine torsion is not fully understood. The instability of gravid uterus resulting from dorsolateral attachments of broad ligament (Sloss and Dufty, 1980) is certainly the most important predisposing factor in bovine uterine torsion. Cows are thought to be more susceptible to uterine torsion given to this uterine instability. The broad ligament supports the uterus dorsolaterally, but attaches to ventral lesser curvature, which allows more rotator movements in this species. As pregnancy advances, the

broad ligaments do not extend proportionately with the gravid uterus, leading to instability (Frazer *et al.* 1996; Drost, 2007). Many authors suggest that increased fetal movements during labor may be a precipitating parturient factor. Other such factors that have been mentioned are: decreased amount of uterine fluid, flaccid uterine wall, small non gravid horn, excess fetal weight etc. (Jayakumar *et al.* 2014). The bovine amnion is fused at many places to the surrounding allantois, which is attached to the uterine wall (Singh *et al.*1995). Rotatory fetal movements during the second stage of labor or late gestation would rotate the uterus along with it resulting in uterine torsion. A large number of predisposing causes have been described (Sane *et al.* 1982; Mannari and Tadkod, 1976) for uterine torsion in cows and buffaloes which include besides anatomical factors, close confinement, hilly tracts, and wallowing habits of the buffaloes. The resting of bovines on their knees for a while when getting up and the lowering of front legs by the animal first, when lying down have also been suggested as one of the causes. Some exciting causes for the occurrence of uterine torsion have also been described (Sane *et al.* 1982) and include external injury, lack of exercise and irregular movement of animals. Slight rotations (below 90°) are symptom less clinically and may be corrected spontaneously during parturition, but rotations of higher degree usually do not detort by themselves and need Clinician's attention.

The incidence of uterine torsion is considered to be higher in buffaloes compared to cows. The reasons for such a discrepancy are poorly explained (Purohit *et al.* 2011). The incidence in buffaloes as suggested by different workers varies from 53% to 83% (Vasishta, 1983; Malhotra, 1990; Singh, 1991a; Prabhakar *et al.* 1994; Purohit and Mehta, 2006; Srinivas *et al.* 2007; Puro- hit*et al.* 2011a; Purohit *et al.* 2011b, Purohit *et al.* 2012). The incidence of uterine torsion in cows as reported by Roberts (1971) is 7.3%. Other reports suggest that such incidence ranges between 7 to 30% (El Naggar, 1978; May, 1950; Pearson, 1971). Stall fed and not pastured bovines are proposed to be more prone to uterine torsion (Agarwal, 1987). Williams (1943) stated that the incidence of uterine torsion in pastured cattle was 2.7% and in stabled cattle 8.6%. The incidence is known to be higher in pleuriparous cows and buffaloes with maximum frequency during second and third calvings (Mannari, 1969; Nanda, 1995).The proposed reasons for this increased incidence in pleuripara include larger abdom- inal cavity, stretching of pelvic ligaments, loose and long broad ligaments together with loosening of uter- ine tissue and decreased uterine tone in aged bovines (Roberts, 1986; Berger-Pusterla, 1995; Drost, 2007; Aubry *et al.* 2008).

There exists a difference of opinion as to the frequent side of uterine torsion in cows. While Arthur *et al.* (1996) and few other workers concluded that the side of torsion is generally left side in cows, a few reports (Singla *et al.* 1992; Roberts, 2002; Purohit *et al.* 2011) are of the view that because of presence of rumen on the left side, the side of torsion should usually be the right side in cows. The reported incidence of right sided torsion is 83% in *Bos indicus* cattle (Prabhakar *et al.* 1994; Prasad *et al.* 2000), 79% in

cross bred cattle (Singh *et al.* 1992), and 95-98% in water buffalo (Vasishta, 1983; Prabhakar *et al.* 1994; Srinivas *et al.* 2007). Incidence of post-cervical torsions is 66-96% (Aubry *et al.* 2008).

A modified rolling technique known as Schaffer's method as described by Arthur (1966) is recommended widely for detorsion. It is crucial that direction of torsion is correctly determined prior to attempts at correction as rotation in incorrect direction will only aggravate the problem. The direction of the vaginal fold twisting shows the direction of torsion. On rectal examination, the twisted horn can be felt and the broad ligament on the side of torsion is rotated downwards sometimes palpable under the uterus and the ligament on the opposite side is tense and stretched and crossing to the opposite side. It generally occurs during late first stage or early second stage labor, but there are some reports of prepartum torsions as well (Frazer *et al.* 1996; Srinivas *et al.* 2007). Uterine torsion in cows and buffaloes may culminate in death of both the fetus and the dam if not treated early. The prognosis of uterine torsion is good during early correction. In cases treated beyond 24-48 hours, chances of fetal survival are negligible (Mohteshamuddin et.al. 2014). The dam survivability is high with rolling but comparatively lower with cesarean section because of poor patient condition and post-operative complications (Prabhakar *et al.* 1997; Singh and Dhaliwal, 1998).There are equivocal reports regarding survivability of calves delivered from torsion. Frazer et.al (1996) reported 12.5% survivability, while Pittabiraman *et al.* (1979) says it varies between 4-56%.

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