

*Clinical Article*

**CLINICAL DIAGNOSIS OF UTERINE TORSION IN BOVINES: AN UPDATE**

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**Abstract:** Uterine torsion more commonly encountered in bovines. Most of the time in field condition, veterinarian fails to diagnose the torsion cases; Accurate diagnosis of the direction of the torsion through per rectal examination is necessary prior to making attempts at rotation, as detorsion in the opposite or wrong direction will worsen the condition. Diagnosis of torsion is important than the treatment. The present short communication designed for all aspects of clinical diagnosis of uterine torsion. Additionally few personal observational findings were updated for diagnosis of torsion in field level.

**Keywords:** Bovine, Clinical diagnosis, Dystocia, Uterine torsion.

## **INTRODUCTION**

Uterine torsion in buffaloes more common form of dystocia, it can be defined as rotation of the pregnant uterine horn on its longitudinal axis (Purohit, 2011 a). Incidence of uterine torsion ranges from 52-70%, and its affects bovines mostly towards terminal gestation (Murthy et al., 1999), at parturition (Matharu and Prabhakar, 2001). Specifically at last first stage or early second stage of labour; or at post partum (Mathijisen and Putker, 1989). Uterine torsion is one of the complicated causes of maternal form of dystocia in bovines especially in buffaloes culminating in dead of foetus and/or dam if not treated early. Uterine torsion must be considered as an emergency, early presentation of cases to referral units and early institution of therapy gives favourable prognosis to the dam and foetal survival.

Most of the time in field condition, veterinarian fails to diagnose the torsion cases; Accurate diagnosis of the direction of the torsion through per rectal examination is necessary prior to making attempts at rotation, as detorsion in the opposite or wrong direction will worsen the condition. The present review designed for all aspects of clinical diagnosis of uterine torsion. Ghuman, (2010); Purohit and Gaur, (2014) reviewed diagnosis of uterine torsion in bovines. In the present review recorded additional clinical diagnosis procedure for uterine torsion in buffaloes; Moreover the present review useful for field practitioners.

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## CLINICAL DIAGNOSIS

Tentative diagnosis arrived at based on history and clinical signs. Moreover definitive diagnosis made by either per vaginal or per rectal examination or both.

**1. Based on history and clinical signs:** Tentative diagnosis is easy when the typical abnormal symptoms appears at the time of parturition or last trimester of gestation. Typical history of uterine torsion will indicate that animal was about completed gestation, as exhibited by engorged teat with letdown of milk and relaxation of pelvic ligaments, but adequate time has elapsed and still there is neither the rupture allantoic /amniotic water bags nor the appearance of fetus from the vulvar lips (Prabhakar et al., 1995).

**a) General and systemic signs:** Tachycardia, increased respiratory rate with oral breathing, restlessness, frequently lie down and gets up, severe abdominal pain (Colic) with kicking of the abdomen with her hind legs on the side of the pain (Noakes et al., 2001). Severe abdominal pain may suggestive of stretching of the broad ligaments from their normal anatomical position (Sloss and Dufty, 1980; Frazer et al., 1996). Moreover increase in abdominal straining due to stimulation of stretch receptors present in the vaginal walls (Frazer et al., 1996).

If the case is not treated during this period, slowly the parturition signs has ceased followed by the tightening of the sacro-sciatic ligaments and resorption of milk. It can be identified by relaxed udder with absence of teat engorgement followed by disfigure of normal udder structure; moreover failure of relaxation of relaxation of sacro-sciatic ligaments observed in most of the clinically presented cases, in that cases complete relaxation of sacro-sciatic ligaments was observed after detorsion. "*Author(s) found that Uterine torsion is mask the parturition signs like relaxation of sacro-sciatic ligaments followed failure of sinking of croup*" due to stretching of broad ligaments (Personal observation). If torsion cases untreated for several days, gradually the appetite decrease, rumen function ceases and faeces become hard (Frazer et al., 1996; Srinivas et al., 2007).

**b) External sign:** Displacement of upper vulval commissure inward towards right or left side in accordance to side of uterine torsion. Vulval oedema with necrosis of vulvar mucosa due to compression/ strangulation of vaginal vein and lymphatic drainage, and a mild to moderate depression of lumbo-sacral vertebrae are not the valid features in all cases (Frazer et al., 1996; Schonfelder et al., 2003).

Sinking and reddening of the eye ball, mild to moderate level of dehydration, collateral venous circulation on external abdominal wall, and in co-ordinance gait due to oedema of the limbs (personal observation).

**2. Per vaginal Examination:** Most probably post and pre cervical torsion can be diagnosed by vaginal examination; however per rectal examination is indicated for confirmative diagnosis of pre cervical torsion.

**a) Post-cervical uterine torsion:** In normal pregnant animal, per vaginally no vaginal folds is palpable and flower like external os of the cervix easily accessible. In case of torsion vaginal folds are palpable due to rotation of cervical area of broad ligaments. Post cervical torsion can be easily diagnosed by per vaginal examination. In buffalo concern post cervical torsion was common. About 69-96 % uterine torsion are post cervical in which the broad ligaments twist up to caudal to the cervix and involves rotation of anterior portion of vagina (Noakes et al., 2001; Aubry et al., 2008).

Singh, (1991) opined that anterior vagina is the weakest point of the bovine genital tract, due to the absence of muscles in the cervical area of the broad ligaments. During vaginal examination, spiral folds or twists are present in vaginal wall along an reachable cervix indicative of post cervical with less than 180° torsion (Noakes et al., 2001; Drost, 2007). Spiral folds or twists are present in the vaginal wall with not accessible cervix indicative of post cervical with more than 180° torsion.

**b) Pre-cervical uterine torsion:** In pre cervical torsion, the twisting of broad ligaments lies on the body of uterus and does not include the cervix, so, during per vaginal examination vaginal folds are absent and cervix is easily reachable (Noakes et al., 2001)

**c) Pre and post cervical torsion:** Rarely clinically presented cases on per vaginal examination reveals vaginal fold with easy accessible cervix; however on per rectal examination reveals twisting of broad ligaments over the body of the uterus also. It indicative of pre and post cervical torsion (personal observation).

### **3. Per Rectal Examination:**

In normal pregnant animal, the course of the broad ligaments palpated on the side of the uterus, where as in pre cervical and post cervical torsion the orientation of broad ligaments is altered from their normal anatomical position and these can be felt by twisted uterus (Noakes et al., 2001). However direction of uterine torsion can be diagnosed by per rectal examination. Per rectal examination validate for both pre and post cervical torsion. The

direction of torsion may be of Right side (Clock wise) or Left side (Counter Clock wise) (Sloss and Dufty, 1980; Noakes et al., 2001; Roberts, 2004)

Right side broad ligament rotated along with uterus and pulled vertically downwards beneath the uterus, whereas left side broad ligament is tightly stretched above the uterus in right side torsion. *Vice-versa* for left side torsion. The examiners hand will move in a pouch like structure formed by crossing over of broad ligaments (Berchtold and Rusch, 1993; Noakes et al., 2001; Drost, 2007).

**4. Palpation of Middle Uterine Artery:** Right and left middle uterine artery supplying blood to the uterus and its structure. It increases in diameter as pregnancy advances. Normally in pregnancy right middle uterine artery governs main function than left middle uterine artery due to right horn pregnancy in bovines. It normally goes along with course of broad ligaments over the shaft of ilium. Cranial displacement of right and left middle uterine artery on the right and left side of the uterine torsion respectively, it may be due to stretching of broad ligaments (personal observation).

**5. Palpation of Foetus:** At term normally foetal parts like head and foetal limbs can be easily palpable per rectally. Moreover per vaginally head and limbs with movement of foetus while pinching of foetal limbs over the cranial vaginal wall. In torsion cases palpation of foetal parts is difficult due to stretching of broad ligaments and ventrally displaced uterus with foetus; Moreover after detorsion foetal parts like head and limbs are palpable through per rectal examination (personal observation) that indication of detorsion occur.

**6. Fore arm entrance test:** At term per vaginal examination of normal pregnant animal allows *three fourth of the fore arm* to reach the cervix where as in torsion allows *one fourth of the fore arm* due to obstruction by vaginal folds. However it may vary from parity of animal and hand size of the obstetrician (Personal observation).

**7. Finger side test/ method:** Vaginal folds is not allowing the hands but allows the fingers. However through the vaginal folds, fingers go to the left side and dorsal face of the fore arm (hand) faced on right side of the animal indicative of *Right side torsion*. *Vice-versa* for *Left side torsion*. But, this method not valid for pre cervical torsion and adhesion formed cases. Moreover it can be confirmed by per rectal examination (Personal observation).

#### **DIFFERENTIAL DIAGNOSIS:**

Uterine torsion often shares clinical signs with other clinical conditions likes, simple indigestion, rumen impaction, intestinal volvulus, intestinal torsion, intussusceptions, left displacement of abomasum, acidosis, traumatic reticulo pericarditis (TRP), bronco

pneumonia, vagal indigestion, diaphragmatic hernia (DH). Moreover delayed cases of uterine torsion have 90-95 % of similar clinical signs with other medical-surgical condition. *Best differential diagnosis method for uterine torsion from other clinical condition is Per rectal and per vaginal examination.*

#### **Summary of updated clinical diagnosis method:**

1. *Uterine torsion is mask the parturition signs like relaxation of sacro-sciatic ligaments (Pelvic ligaments) followed failure of sinking of croup, due to stretching of broad ligaments*
2. *Mild to moderate Cranial displacement of middle uterine artery from their normal anatomical position.*
3. *In torsion cases per rectal palpation of foetal parts is difficult due to stretching of broad ligaments and ventrally displaced uterus with foetus. Moreover after detorsion foetal parts like head and limbs are palpable through per rectal examination.*
4. **Fore arm entrance test:** *At term per vaginal examination of normal pregnant animal allows three fourth of the fore arm to reach the cervix where as in torsion allows one fourth of the fore arm due to obstruction by vaginal folds.*
5. **Finger side test/ method:** *Through the vaginal folds, fingers go to the left side and dorsal face of the fore arm (hand) faced on right side of the animal indicative of Right side torsion. Vice-versa for Left side torsion.*

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