How to Perform Non-Surgical Correction of Acute Uterine Torsion in the Mare

Laura M. Riggs, DVM

1. Introduction
Uterine torsion in the mare is an uncommon but life-threatening event for both the pregnant mare and the fetus. Most cases occur in the last 60 days of gestation but before the onset of labor. Uterine torsions are often diagnosed as an acute event with the affected mare showing mild to moderate signs of colic, although violent colic episodes do not preclude the diagnosis of uterine torsion. Colic signs can temporarily be alleviated with non-steroidal anti-inflammatory medications (NSAIDs) and sedation. Chronic uterine torsions have also been diagnosed after periods of pyrexia, anorexia, and depression, but difficulty of diagnosis and degree of abdominal inflammation in these cases usually necessitate laparotomy. Non-surgical methods for correction of the acute uterine torsion in the mare include two options: vaginal correction in the standing mare and rolling the anesthetized mare in lateral recumbency. Vaginal correction by rocking the fetus is possible in rare cases when the pregnancy is at term and the cervix is adequately dilated to allow grasping of the foal’s legs. If this is not possible, correction of the torsion by rolling the mare in lateral recumbency is frequently successful. Both the “rocking” and “rolling” techniques are relatively easy to perform in the field, have low complication rates, and offer an economic advantage to referral and surgical correction by flank or midline laparotomy.

2. Materials and Methods
Diagnosis
Diagnosis of uterine torsion is made by rectal palpation. Most cases involve a torsion of 180°. On rectal examination, a taught broad ligament is palpable obliquely when crossing the uterus in the direction of the torsion. In cases of clockwise torsion (described from a position standing behind the horse), the left broad ligament will usually be palpable above and horizontal to the uterus coursing cranial and to the right (Fig. 1). The right broad ligament may be palpable in a vertical direction passing below the uterus. In a counterclockwise orientation, the right broad ligament will usually be palpable above and horizontal to the uterus coursing cranial and to the left (Fig. 2). The left broad ligament may be palpable in a vertical direction passing below the uterus. Definitive diagnosis of the presence and direction of uterine torsion is critical for non-surgical management. If the practitioner is not comfortable with the diagnosis of uterine torsion, non-surgical correction should not...
be attempted. Obviously, incorrect identification will exacerbate the torsion when correction is attempted.

A vaginal exam should also be performed to determine the degree of cervical dilation and therefore, the method of non-surgical correction to be attempted. Regardless of the method used, the mare should be given a NSAID such as flunixin meglumine (1.1 mg/kg, q 12 h, IV) for analgesia.

Rocking Procedure
If the foal is term, which is rarely the case, the cervix may be sufficiently dilated to allow grasping of the legs of the foal and using the foal to return the uterus to normal position. In this procedure, the foal acts as a pendulum and is rocked in an arc until correction of the torsion is accomplished.²

Anesthesia for the standing vaginal correction can be accomplished with an epidural performed between S6-Co1 and Co1-Co2 composed of xylazine hydrochloride (0.17 mg/kg) and lidocaine (0.22 mg/kg) diluted to a volume of 10 ml in sterile saline.³ The epidural can be combined with intravenously administered sedation if necessary.

Rolling Procedure
The goal of rolling is to maintain the uterus in a stationary position and rotate the body of the mare around it in the direction of the torsion.⁴–⁶ This will allow the mare to essentially “catch up” to the position of the uterus. A wooden plank or board placed on her flank is used to secure the uterus in place (Fig. 3). The plank should be long enough to stay in place while the mare is rotated under it, and dimensions should be 2.5–5 cm × 10–15 cm × 2.5–3.5 m (1–2 in × 4–6 in × 8–12 ft).

Short-term anesthesia can be accomplished by the use of injectable anesthetics. A suggested anesthetic protocol includes sedation with xylazine (1 mg/kg, IV) and butorphanol (0.02 mg/kg, IV) followed by induction with diazepam (0.2 mg/kg, IV) and ketamine (2 mg/kg, IV); maintenance should be with 500 ml of 10% guaifenesin and 650 mg of ketamine-325 mg of xylazine combined and given intravenously at a rate of 2 ml/kg/h.⁷

After the direction of the torsion is established, the mare is anesthetized and placed in lateral recumbency on the side of the torsion. If dealing with a clockwise torsion, the mare is placed on her right side, and if dealing with a counterclockwise torsion, the mare is placed on her left side. Rope hobbles are placed on the legs to facilitate rotation. The plank is placed on her flank cranial to the tuber coxae with enough of the plank toward her dorsum to allow it to remain in position as rotation occurs (Fig. 3). A person then sits or stands on the plank to fix it into position. Two people grasp the hobbles and roll the mare into dorsal recumbency, continuing to roll her over into the opposite lateral recumbency (Fig. 4). Correction of the torsion is confirmed by rectal palpation that can be performed in lateral recumbency but may require the mare to be rolled into sternal recumbency for verification (Fig. 4). If the torsion is not corrected, the mare can be rolled...
If a second attempt at rolling does not produce correction, surgical options should be explored.

3. Results
At this time, non-surgical correction has become the treatment for choice of uterine torsion in the mare at many facilities that have the ability to perform either surgical or non-surgical methods of correction including the University of Georgia’s Veterinary Teaching Hospital. Success rates of non-surgical correction are high with low complication rates. Complications include uterine rupture and recurrence of uterine torsion.\textsuperscript{2,5,6} The technique offers a non-invasive, low-risk alternative to surgical management of uterine torsion.

4. Discussion
When choosing the method by which uterine torsion correction will be attempted, it is important to evaluate the individual case and environment in which the correction will occur. The rolling technique usually requires a minimum of 3–4 individuals to induce and monitor anesthesia, stabilize the uterus, and roll the mare. It can easily be performed on the farm and is economically feasible for most horse owners. Alternatively, standing flank laparotomy requires surgical equipment, stocks for restraint, a sterile environment, and familiarity of the surgeon with the procedure. These requirements often cannot be met in the farm environment, which requires referral of the patient for surgical correction. The complications of surgical correction by standing flank or ventral midline approach under general anesthesia include uterine rupture and peritonitis. Additionally, choosing the rolling technique still allows conversion to a surgical approach if unsuccessful. In summary, non-surgical techniques require less specialized training or equipment and are inexpensive.

References