

Case Report—A Complicated Bovine Uterine Torsion

Lynne M. Dzuba, DVM
Bovine Veterinary
Newton, WI 53063

Abstract

A seven-year-old pluriparturient Holstein cow was presented because of failure to complete parturition. On physical examination a 270-degree, counterclockwise uterine torsion was found. Attempts to correct the torsion via the vagina were unsuccessful as the fetus would immediately return to the dorso-ileal position when released.

A left flank laparotomy was performed and the 270-degree counterclockwise torsion was confirmed. One hind limb has perforated the uterine wall and was the cause of failed attempts to correct the torsion vaginally. The live term, male fetus was delivered by cesarean section.

The uterus and body wall were routinely closed and the cow was treated for shock. She died 12 hours post-operatively.

Introduction

Uterine torsion is a calving abnormality in which the cow fails to proceed to stage II labor due to physical restrictions. The uterus may become torsed pre- or post-cervically, but the post-cervical condition is most commonly recognized. Torsion in cattle is clockwise in the majority of documented cases.³

Typically, the cow with a uterine torsion ceases to deliver a calf following the period of cervical dilatation, defined as stage I labor.⁵ After a variable period of time, veterinary assistance is often required. Outcome for the dam and calf is directly related to the time elapsed between torsion and delivery.^{3,6} The etiology of bovine uterine torsion has been speculated to be an active, large, term calf in an unstable uterus.^{2,3,8} Lameness can be a predisposing factor because the cow may stumble while rising or lying down.¹

Uterine rupture is uncommon in torsion cases and is more likely to occur under such conditions as breech presentation, primiparous animal or male fetus.⁷ In a case study by Frazer et al,² uterine rupture occurred in only 9% of torsion parturitions. The study classified each case of uterine rupture as a spontaneous or iatrogenic complication of uterine torsion based on the condition of wound edges.

Case Management

A seven-year-old, 1320 lb (600 kg) pluriparturient Holstein cow presented with a history of failure to complete parturition. The owner had expected her to calve the previous evening. On physical examination, temperature was normal at 102° F (39° C), heart rate was 80 beats per minute, and the respiratory rate was 10 breaths per minute. Rumen motility was depressed and the patient appeared anxious. A vaginal and rectal examination confirmed a 270-degree, counterclockwise uterine torsion. The folds of the vagina spiraled to the left, and the right broad ligament was tense when palpated rectally. The fetus was viable and presentation was anterior dorso-ileal.

The uterus was torsed post-cervically and the cervix was dilated enough to admit a hand to grasp and manipulate the fetus. The fetus could be manually manipulated into the normal anterior dorso-sacral presentation, but upon release returned immediately to the dorso-ileal position. Following several attempts at manual correction, a DeMott detorsion rod was introduced and the fetal forelimbs were secured to it at the metacarpal. The fetus continued to struggle violently and would not remain in a normal delivery position.

The cow was prepped for a left flank laparotomy. Abdominal exploration revealed a 270-degree, counterclockwise torsion with extra-uterine displacement of one hind limb, which was the cause of failed efforts to manually de-torse the calf. From the uterine tear, an incision was extended along the greater curvature of the gravid horn caudally to the tip of the horn. The 132 lb (60 kg), male calf was delivered alive.

The uterus was de-torsed and exteriorized to examine the rupture. Wound edges showed granulation consistent with primary healing. No septic peritonitis was evident at the time of surgery. The degree of healing present led the surgeon to believe the rupture occurred prior to intervention. A 0.4 inch (1 cm) strip of uterine tissue was removed to facilitate primary healing following closure, and the uterus was closed with 3 Vicryl in a double-layer Lembert suture pattern. The abdomen was closed in three layers.

Post-operatively, the cow was treated for shock with two liters of 8 percent hypertonic saline, 1 gram dexamethasone and 500 mg flunixin meglumine IV. She drank 10 gallons of oral electrolyte solution. Systemic antibiotic therapy was instituted with procaine penicillin-G administered at 4545.5 IU per lb (10,000 IU per kg), every 12 hours. The cow died approximately 12 hours post-operatively, apparently due to overwhelming shock from the extensive procedure.

Discussion

This case demonstrates the role of the calf at parturition. The gravid bovine uterus is anatomically unstable, especially when near term. The uterine horns are each supported by a broad ligament. The gravid uterus overgrows the stable attachment in the pelvis and is supported in late gestation by the rumen, intestines and abdominal wall. The non-gravid horn further increases the instability.³

The actual torsion may be caused by an oversized fetus, overactive fetus, or both.^{2,3} Decreased dry matter intake may contribute, as the rumen is shrunk and more space is available for fetal movement.⁹ Exercise may play a role, since an increased incidence is seen in housed cattle.¹

Severity of torsion most commonly exceeds 180 degrees, although torsions of lesser magnitude probably go unreported.² Although uterine torsion has been reported as early as 70 days of gestation, the condition typically is associated with advanced pregnancy.⁴ An atypical uterine torsion of 720 degrees in a cow 161 days pregnant has been reported.¹⁰

Diagnosis of uterine torsion is based on vaginal and rectal findings. Vaginally, the tissue spirals in the direction of the torsion.¹ The diagnosis can be confirmed rectally using broad ligament tension to determine direction. The left broad ligament will be tense when the torsion is clockwise; the right broad ligament will be tense when the torsion is counterclockwise.

Acceptable methods of de-torsion of the gravid uterus include:

- Manual-vaginal manipulation of the fetus to the correct position for vaginal delivery.

- DeMott detorsion rod: a rod of 3/8 inch steel, 30 inches long with a 1-1/2 inch eye at either end. The rod is secured to the fetal legs and gently rocked in the opposite direction of the torsion.
- Rolling the cow: the cow is placed in lateral recumbency with the down side being the direction of torsion. The cow is rolled in the opposite direction of the uterus in an attempt to rotate the cow past the uterus.
- Schaffer's Modified Rolling Technique: using a plank to apply pressure to steady the uterus as the cow is rotated.
- Laparotomy with or without cesarean section.³

Summary

Uterine rupture is an uncommon complication of uterine torsion. The location of the rupture in this case differed from those previously cited in literature which were transverse, just cranial to the cervix. In this case, the rupture occurred along the greater curvature of the uterus. Management of the case was consistent with the presentation and diagnosis.

References

1. Elmore RG: Focus on bovine reproductive disorders: Diagnosing and treating uterine torsion. *Vet Med* 88 (2):170-173, 1993.
2. Frazer GS: Bovine uterine torsion: 164 hospital referral cases. *Theriogenology* 46:739-758, 1996.
3. Manning J: Bovine uterine torsion: A review illustrated by cases from the Western College of Veterinary Medicine Large Animal Clinic. *Bov Prac* 17:94-98, 1982.
4. Moore AA, Richardson GF: Uterine torsion and fetal mummification in a cow. *Can Vet J* 36:705-706, 1995.
5. Morrow DA: Current Therapy in *Theriogenology* pp 247-256, 1980.
6. Pattabiraman SR, Singh J, Rathor SS, Dhablania DC: Non-surgical method of correction of bovine uterine torsion-A clinical analysis. *Indian Vet J* 56:424-428, 1979.
7. Pearson H, Denny HR: Spontaneous uterine rupture review of 26 cases. *Vet Rec* 97:24-244, 1975.
8. Prabhakar S: Clinic-obstetrical observations on uterine torsion in bovines. *Indian Vet J* 71:822-824, 1994.
9. Ruegg P: Twisted Uteruses Dairy-L@UMDD.UMD.EDU June 4, 1995.
10. Ruegg PL: Uterine torsion of 720° in a midgestation cow. *J Am Vet Med Assoc* 192 (2):207-208, 1988.