

AVTCP Case Report # 1

Title: Uterine Torsion Leading to a Cesarean Section in the Bovine Patient

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Signalment

The patient is a three year old Holstein-Fresian cow weighing 636.36 kg with a BCS 4/5.

Presenting Complaint

The patient was trying to give birth to her calf. After two and half hours of active labor, no progress had been made in the delivery of the calf.

History

At 7:30 am the owner noticed that the patient was showing early signs of labor. The owner decided to wait approximately an hour to see if the patient would be able to deliver the calf on her own. After an hour, the owner checked on the progress of the patient. She was lying down and showing signs of active labor. There was no visible evidence of a calf. The owner then decided to perform a vaginal exam on the patient to get a better idea of where she was in the labor process. After the owner performed his examination, he knew that it didn't feel like the labor was progressing correctly. The owner suspected she had a uterine torsion based upon his physical exam. The owner then decided to call the veterinary clinic for some assistance.

Physical Exam Findings/Observations

The owner already had the patient standing and restrained by the time the doctor and I arrived. On physical examination, she appeared to be nervous and had labored breathing. She was obviously straining and had her tail extended straight out. A vaginal exam was performed on the patient, which revealed a counter-clockwise uterine torsion. A rectal exam was performed which diagnosed the calf as being dead.

Problem List/Differential Diagnosis

After the vaginal exam was performed the definitive diagnosis was a counter-clockwise uterine torsion that was delaying the progress of the patient's labor. The uterine torsion would be corrected using either vaginal manipulation or a rolling technique. After the uterus is corrected it should be determined if the patient will deliver on her own, or if a cesarean section should be performed.

Diagnostic Approach

In this case, there was no diagnostic work performed beyond a vaginal and rectal exam. Most diagnostic decisions in production animal medicine are based upon physical exam of the patient, and economics.

Treatment Plan

The doctor would first try to correct the uterine torsion by performing vaginal manipulation. The torsion can be corrected vaginally if the cervix is dilated wide enough for the calf's feet to be grasped. Then the calf is rocked until enough momentum builds up to flip the calf and uterus back into normal position. If the vaginal manipulation is unsuccessful, a rolling technique would be performed. The cow would be cast down into left lateral recumbency. A board is then placed on the cow's flank and a person places their weight on the center of the board, to help minimize movement of the uterus, as the cow is rolled over. Once the torsion is corrected, another vaginal exam will be performed. A vaginal exam will determine if the calf will then be delivered by a vaginal delivery or a cesarean section depending on if the patient's cervix is dilated. Following the delivery of the calf, the patient would receive one 500 ml 50 % *dextrose solution IV q24h*, two 1000 ml 7.2% *hypertonic saline IV q24h*, 80 ml *oxytetracycline 100 mg IV q24h*, and 2 ml *oxytocin 20 iu IV qid* for 24 hours, 20 ml *flunixin meglumine 50 mg IV*

q24h, and 20 ml *dexamethasone 2mg IV q24h*. The owner is to follow up with 25 ml *ampicillin 25g IM q24h* for three consecutive days.

Final Diagnosis

After the attempt to correct the uterine torsion by using vaginal manipulation was unsuccessful, the patient was cast down into left lateral recumbency. The uterine torsion was corrected by using a rolling technique. Once the patient was standing, another vaginal exam was performed to confirm that the torsion had been corrected. During the vaginal exam, it was discovered that the cervix was not dilated enough to deliver the calf vaginally. Because the calf was dead, it is unlikely that labor would progress naturally. The owner then elected for a cesarean section.

Outcome

The patient would remain standing and the cesarean section would be performed using a left paralumbar fossa approach. The patient was first prepared for a cesarean section by first administering a caudal epidural using 5 ml 2% *lidocain hydrochloride*. The surgery site was then clipped on the left side, the length of surgery site would extend from the 10th rib the to the most caudal point of the paralumbar fossa, and the width of the surgery site would extend from the spine to the ventral aspect of the flank. Next, the patient was aseptically prepared using *betadine* scrub, and then local analgesia was provided by administering 36 ml of 2% *lidocain hydrochloride* with a proximal paraveterbral blocking technique. Three more final scrubs were performed using *chlorhexadine* scrub. Surgery would begin with an incision being made in the caudal third portion of the fossa entering the abdominal cavity. The uterus would then be exteriorized, and an incision would be made into the uterus to remove the calf. The technician would place OB chains around the calf's fetlocks and the calf would be removed from the uterus

in an upward-outward motion. The calf that was delivered was a 130-pound bull calf. Next, the technician assisted by applying sterile gloves then helped to exteriorize the uterus while the remaining placenta was removed, and the uterus was sutured closed with number 3 *Catgut* suture using a double inverting pattern. After the uterus was suture closed, two liters of warmed *sterile saline* was rinsed over the uterine body and excess blood was removed to help prevent any adhesions formation. Prior to closure of the abdominal muscles one liter of *sterile saline* infused with 20 ml of *penicillin g procaine 300,000 units* would be administered into the peritoneal cavity the surgery would be completed once the abdominal muscles are closed in a three-layer closure using number 3 *Catgut* suture and skin is sutured closed using number 3 *Braunamid* suture in a Ford interlocking pattern. Once the surgery is finished, the technician administered one 500 ml 50% *dextrose solution IV q24h*, two 1000 ml 7.2% *hypertonic saline IV q24h*, 80 ml *oxytetracycline 100 mg IV q24h*, 2 ml *oxytocin 20 IU IV qid*, 20 ml *flunixin meglumine 50 mg IV q24h*, and 20 ml *dexamethasone 2mg IV q24h*. The owner to administer follow up treatment consisting of 25 ml *ampicillin 25g IM q24h* for three consecutive days, and sutures were to be removed in 14 days. A week after the patient's cesarean section, the owner said she was eating a full amount of feed and had good milk production. Sixty-five days after her cesarean section the patient was diagnosed as ready to be re-bred, there were minimal adhesions noted. One hundred and ten days after the patient's cesarean, she was diagnosed as pregnant.

Conclusion

A uterine torsion typically develops at the end of gestation or during the onset of labor.²
(p387) The uterine torsion can be diagnosed by rectal palpation or vaginal exam. Through rectal palpation the broad ligament can be felt. With a uterine torsion, the broad ligament is stretched tightly across the uterus in the direction of the torsion.² (p387) The exact cause for a uterine torsion

is unknown. One theory is too much movement from a large calf can cause an uterine torsion. The torsion can be corrected vaginally if the cervix is dilated wide enough for the calf's feet to be grasped. In such a case, the calf is rocked until enough momentum builds up to flip the calf and uterus back into normal position. If the vaginal correction is unsuccessful, then the cow should be cast down into lateral recumbency on the side that the torsion is going. A board is then placed on the cow's flank and a person places their weight on the center of the board, to help minimize movement of the uterus, as the cow is rolled over. Once the uterine torsion is corrected, the calf may be delivered. If the torsion is unable to be corrected, a cesarean section should be done. A cesarean section is performed when a calf is unable to be delivered vaginally, which can be due to maternal or fetal reasons. A physical examination should be done on the cow to check the cow's attitude, hydration status, dilation of the cervix, and presentation of the calf before a cesarean is performed.^{2(p382)} Diagnostic laboratory tests are not typically used. There are several surgical approaches that may be used for a cesarean section that include left or right standing paralumbar fossa, ventral midline, paramedian, ventrolateral, or left oblique.^{1(p372)} Determining which approach to use depends on the experience of the doctor, temperament of the cow, and the facilities. No more than 5 cc of a local anesthetic should be administered during a standing procedure to avoid the risk of the cow going down.^{2(p383)} Equipment such as chains to help deliver the calf and sterile saline should be ready to use. Once the calf is delivered, the uterus is exteriorized, the remaining placenta is removed, and the uterine body wall is sutured closed. Before the uterus is placed back into the abdominal cavity, it is rinsed with large amounts of sterile saline to minimize any adhesion formation. The muscle and skin layers are then closed. Following surgery, the patient should be given *oxytocin 20 IU quid* for up to 24 hours or until the remaining placenta has passed.^{2(p386)} Supportive care and analgesics should be administered as

needed. Antibiotics are continued for 3 to 7 days. Post-operative complications following a cesarean section include peritonitis, metritis, and abdominal adhesions.^{2(p386)} A 15% decline in fertility was found in one study that compared cattle that had a cesarean to cattle that had a vaginal delivery.^{2(p387)} If a cesarean section goes well, a live calf is delivered, and the cow is healthy, the outcome is favorable.

Discussion

The one choice that could have affected the outcome of the case would be how long the owner waited to assist the cow and then call the veterinarian. If the owner decided to intervene sooner, the calf may have been delivered alive. Or, the cow may have been able to deliver the calf vaginally if the calf was alive. The cervix would have dilated as part of the labor process with a live calf. However, there is no accurate way to determine if the owner waited too long to call for assistance.

References

1. Anderson DE, Rings M, Newman KD, Merchant. M T,eds. *Current Veterinary Therapy: Food Animal Practice*. Vol 5. St. Louis, Missouri: Saunders Elsevier; 2009
2. Fubini SL, Ducharme NG. Fathman EM, eds. *Farm Animal Surgery*. St. Louis, Missouri: Saunders Elsevier; 2004.