Advanced Bovine obstetrics - figures

Figure 1

Figure 2

Figure 3

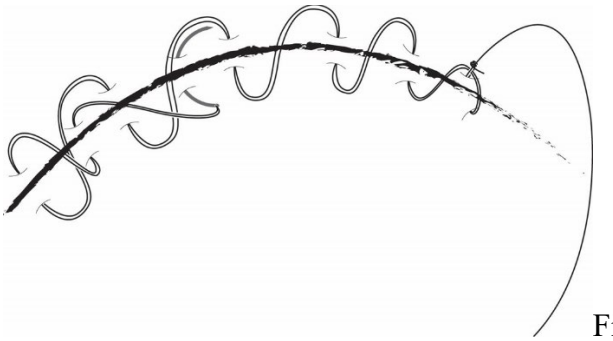

Figure 4

Advanced bovine obstetrics

Richard Hopper, DVM, Diplomat ACT

Auburn University College of Veterinary Medicine

Vaughn Large Animal Teaching Hospital

1500 Wire Road

Auburn, AL 36849

(334) 321-1863

rmh0067@auburn.edu

Abstract

Complicated obstetrical cases are those that occur infrequently enough that they do not appear in retrospective studies thus someone cannot proclaim with a reasonable amount of certainty the best way to handle it. Also, in this category are those cases in which we encounter or create a complication. Cases discussed will include uterine inertia, torsion and the oversized, abnormal or edematous fetus. Complications that will be covered include uterine tears and prolapses.

Key words

Bovine, obstetrical, dystocia

Introduction

The provision of obstetrical services continues to be an important aspect of the large animal practice. The author fully understands that the practitioner reading this, by virtue of their interest, is someone for which bovine dystocia management is a significant portion of their practice and

therefore this will not include a review of basic care. For an excellent review of basic bovine obstetrics I recommend Dr. Drost's presentation from the North American Veterinary Conference, which can be found at www.ivis.org.

Typically, cases that seem difficult are so because they are not common and because infrequently occurring cases do not provide opportunity for journal retrospectives, discussion of management sometimes falls more into the category of "practice tips". While an attempt will be made to offer sounds scientific advice for most of the cases covered, the reader should be warned that much of what follows is based on my perspective or opinion.

Uterine Inertia

This commonly is a result of hypocalcemia and so management/treatment is obvious. I have observed a few cases of what could be described as primary uterine inertia. The typical presentation is a dystocia case in which upon examination, you find that the fetus has not entered the pelvis (birth canal). These cases typically respond to oxytocin. The problem that can arise is when you attempt to deliver (with traction) the calf that is not in position, so the point is to administer oxytocin and then give the cow 15-20 minutes (go to kitchen and drink a cup of coffee). Once the calf is in position (feet/ head engaged in pelvis) the calf can be delivered (traction will likely still be necessary). This is also something to consider when an elective C-section is to be performed and the calf is completely abdominal. It is very difficult to bring the uterus with calf up to the flank approach incision site.

Uterine Torsion

Because a large percentage of uterine torsions in the cow are less than 240° and occur at parturition most can be corrected by manual rotation or with the use of a detorsion bar. Manual rotation can be performed by repelling the fetus as you grasp and rotate a limb. If you get movement, rock back and forth attaining an 8-10 inch arc, flip it on around with a sudden strong twist. Most of the veterinarians that relate their ability to do this are tall and have very good arm-hand strength. Using a Detorsion rod is more straight-forward. An OB chain is fixed in the manner illustrated below and the feet of the fetus are placed in the loops. The bar is then rotated so as to correct the twist.

Additionally, the cow can be cast and rolled with a plank utilized (plank in the flank technique) to hold the fetus/uterus in place as the cow is rolled over. If all else fails a C-section can be performed. If you realize in your approach to the uterus during a C-section that the uterus can be rotated to allow a vaginal delivery this is preferable.

Uterine Tears

Most injures to the uterus are iatrogenic and occur during efforts to relieve dystocia. With few exceptions they occur on the dorsal aspect of the uterus (cranial to the cervix) when the obstetrician is attempting to repel a breech presentation or during the forced extraction of a large fetus. In the case of the first situation repair is secondary to removal of the calf and so a flank c-section is performed and after the calf is delivered the uterine defect may be approached and

repaired through the flank incision. In the second case a “blind” suture repair through the vagina may be best.

First let’s look at how this tear likely occurred. In the case of the tear we caused by “excessive” force in our attempt to repel the calf, the uterine wall was probably weakened by some level of pressure (ischemic) necrosis. In the second situation a large calf, a “dry” birth canal, and forced extraction combine to create an over-folding and subsequent shearing of the uterine wall. These tears are usually 5-30 cm in length although some seem almost circumferential.

Regardless what the etiology of the tear is, repair may not be necessary if it is small and dorsal. Because of rapid uterine involution tears smaller than the width of your hand will usually be OK without repair. Treatment for these can be limited to repeated oxytocin injections for the first 24-48 hours and 7-10 days of antibiotics. If the tear is larger it can be closed with a “blind” suture technique. Thread an atraumatic needle (size and shape is determined by your preference) with a 150cm length of #2 or #3 catgut. With the needle at the halfway point of the suture (doubled) make a knot about 25cm from the end. Next introduce the needle into the vagina guarding the point with your fingers until you reach the tear. At one end of the tear begin your closure. After going through the uterine wall (about 1cm lateral to the tear) run the needle between the doubled suture and cinch at knot. Then close the tear with a continuous pattern until the last bite is made 1cm lateral to the end. It is important to pull the suture tight with each throw. You will then reverse and continue the closure back to the original site and tie to the tail. Uterine involution

serves to cover small appositional problems. Recommended treatment includes antibiotics and oxytocin.

[Insert Figures 1-4 here]

Alternatively, it has been recommended to prolapse the uterus, repair the laceration/tear externally, and replace the uterus. To manually prolapse the uterus the cervix must be completely dilated. Epinephrine (10cc 1:1,000, IV administered very slowly or in 250ml of saline) is given and a caruncle in the cranial most aspect of the horn is grasped and pulled on. Suturing the exposed uterus should be straight forward and replacement is the same as usual. However, because of the location of the vast majority of these tears (very close or adjacent to the cervix), the area that is torn is not completely exteriorized following prolapse and more importantly in the case of the tear that is close to being circumferential one should question whether this procedure will result in the prolapsing of the uterus or its removal.

The Emphysematous Fetus

This presentation typically presents as a combination of management issues; a closing cervix, absence of placental fluids, and a dry, swollen fetus. A common finding is a breech presentation. The cervix is the first area to assess/address. If you can get your hand through and the cervix dilates you can pump in 1-2 gallons of lubricant and perform a fetotomy.

If you can barely get your hand through the cervix and it does not dilate with your manipulation a C-section may be your best option. A ventral midline provides the best exposure (and least contamination of the abdomen) for the emphysematous breech. If finances are an issue in the case of the closing/tight cervix, you might try pumping 1 gallon of mineral oil, 1-2 quarts of

water with 2-4 grams of tetracycline through the cervix, and administering systemic antibiotics and NSAIDS. You can then return in 1-2 weeks and remove the fetal parts and lavage the uterus.

The Over-sized or Abnormal Fetus

The key with either of these is recognition early in your obstetrical efforts so that a correct management approach can be made. With few exceptions either a fetotomy or C-section will have to be performed.

C-section-Fetotomy Facts/Tips/Considerations

- Calf dead or alive (Calf's value?).
- Cow in chute, good facilities- most veterinarians can perform a C-section faster than a complete fetotomy
- Many dead calves (including abnormal, ie Schistosomus) can be delivered with 1-2 fetotomy cuts.
- Cow's return to function, future fertility.
- Fetotomy always easier standing
- C-section approaches: Left flank almost always best, even if cow is down. The ventral mid-line best for heifers under 650lb or for emphysematous breech.
- Always make uterine incision longer than you think you need to.
- If gross abdominal contamination with C-section Use a rumen trocar and push through from abdomen at most ventral aspect. This will facilitate abdominal lavage better than anything.

Uterine Prolapse Tips

- Client education- make sure cow restrained and place uterus in garbage bag
- Epidural and if necessary Pudendal Nerve Block (see surgery notes)
- Correct positioning of cow- sternal, legs back (up on hocks)
- Catheterize bladder if distended and causing problem
- Stomach tube in trachea if excessive grunt-pushing, straining
- I don't remove placenta unless very dirty
- After replacement lavage with warm saline with Betadine™ (always remove)
- I don't use retention sutures
- Get cow to feet.

Conclusion

Even with competent management of bovine dystocia complications are always a possibility. Add to this the fact that cattle producers often feel the need to intervene in these cases prior to seeking our assistance and it is no wonder that bovine veterinarians get the opportunity to see a lot of difficult obstetrical and urogenital problems. While our goal is usually the restoration of fertility, often simply facilitating recovery to allow salvage is economic incentive enough to attempt most of the management or surgical procedures described.