

How to succeed with ventral midline C-sections for the bovine patient

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Abstract

Midline cesarean section has notable utility and can be done efficiently and safely.

Case selection

A clinician should consider case selection for midline approach vs. other approaches for either fetus state or clinician ability. When the fetus is dead and emphysematous, a midline approach may limit abdominal contamination. Extracting a calf from a laying animal may also allow easier access for the practitioner either because the calf is easier to retrieve or to lift out. Midline approach is also more favorable when the dam is either unable to stand for procedure or is too small for an appropriate flank incision.

Set appropriate client expectations

Bovine cesareans are frequently medical procedures determined by economics. In our practice the determination to cut is readily associated with the price of the animal's replacement and prognosis of the dam. Data associated with live dam and calf and return to fertility in subsequent calving cycles varies widely. Deciding projected prognosis of the dam, in my hands, depends on stability of cow/heifer, state of degradation of the fetus, ability of practitioner and efficiency. This number is subjectively decided chuteside based on my experience and very little refereed data. As a practice pearl, make sure you do not over estimate your chances of success and survival of the dam if her systemic state is very poor.

Anesthesia

I administer a caudal epidural to all bovine obstetrics at first presentation. This assists some in pain control, keeps you from being slapped with the tail and adds to general public perception of pain modulation. As a general rule I administer 3 ml of lidocaine to an animal less than 900 lbs., and 5 ml to a bovine over that weight limit.

In all bovine surgical procedures, we administer a Ketamine stun. Route and dose depends on goal of procedure. I refer to "Chemical Restraint of Ruminants – Ketamine Stun Technique" by Eric J. Abrahamsen, DVM, DACVA for doses and route selection. For midline approach, I select IV recumbent dosing that I administer via jugular vein. Then using cotton ropes, hydraulic chute and electric winch roll the cow/heifer into lateral with hind limbs pulled into dorsal recumbency.

Lidocaine block

Varying options. Again, my suggestion here is use what you are comfortable with, likely enough lidocaine in any pattern will work. For midline approach I use solely a line block from one hand width above the navel to the udder.

Epinephrine

Administration of 10 cc of epinephrine IM helps notably with pliability of the uterus. I find that it allows for easier fetal manipulation and exteriorization after smooth muscle relaxation.

Approach

Our clinicians perform predominantly midline approach to the uterus. Preference for midline approach in our practice is three-fold. Primarily, the animals we perform C-sections on are small feeder or replacement heifers weighing less than 900 lbs., making obstetrics facilities to fit them hard. This animal is also very likely to "give up" and lay down on their own. Second, our clientele mostly encompasses western ranches, allowing the mass majority of animals presented for dystocia having dead and necrotic calves or having had extensive on-ranch attempts for fetal expulsion. Last, we find it to be notably less physically taxing and we can more efficiently perform the procedure. Decision for approach should be made based on your practice demographic, bovine population and mentoring ability.

At this point, the animal is anesthetized, in dorsal recumbency and has had a line block administered with lidocaine. I prefer to leave the thorax rolled slightly to the side to help minimize vagal nerve stimulation.

An incision is made into the abdomen through the linea from the umbilicus toward the udder for about nine inches. Incision can be extended after the calf is engaged. Any structure within the uterus is pulled up to the body wall incision and the uterus is incised, making specific effort to not allow abdominal contamination. Chains hooked to feet and either another human or winch keeps tension on the fetus while a uterine incision large enough to extract fetus is made. The fetus is removed and an attempt is made to exteriorize the uterus only enough to help ensure amniotic fluid does not spill into abdomen.

The uterus is closed with a utric pattern and PDS 0, then lavaged with LRS and returned into the abdomen. Body wall closure is in three layers; linea, subcutaneous tissue, skin. For inner layers I choose PDS 2 and skin closed with Braunamid 8.

Post operative care

The above procedure from time of anesthetic administration to cow/heifer standing averages 30 minutes. Be careful to pick up placental materials, blood and fluid before allowing the cow to stand to help ensure she doesn't slip when standing.

Administration of antibiotic of choice is warranted based on state of metritis and appropriately labeled and spectrum drugs. NSAID is always administered to dam.

