

1 How to Succeed with Ventral Midline C-sections for the Bovine Patient

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3 Abstract:

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

5 Case Selection:

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

12 Set appropriate client expectations:

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

20 Anesthesia:

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

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

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

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

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36 Approach:

37 Our clinicians perform predominantly midline approach to the uterus. Preference for midline approach in  
38 our practice is three fold. Primarily the animals we perform csections on are small feeder or replacement  
39 heifers weighing less than 900 pounds making obstetrics facilities to fit them hard. This animal is also  
40 very likely to “give up” and lay down on their own. Secondly, our clientele mostly encompasses western  
41 ranches, allowing the mass majority of animals presented for dystocia have dead and necrotic calves or  
42 have had extensive on ranch attempts for fetal expulsion. Lastly, we find it to be notably less physically  
43 taxing and we can more efficiently perform the procedure. Decision for approach should be made based  
44 on your practice demographic, bovine population and mentoring ability.

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

47 A incision is made into the abdomen through the linea from the umbilicus towards the udder for about  
48 nine inches. Incision can be extended after the calf is engaged. Any structure within the uterus is pulled  
49 up to body wall incision and uterus is incised making specific effort to not allow abdominal contamination.  
50 Chains hooked to feet and either another human or wench keeps tension on the fetus while uterine  
51 incision large enough to extract fetus is made. Fetus is removed and attempt is made to exteriorize  
52 uterus only enough to help ensure amniotic fluid does not spill into abdomen.

53 Uterus closed with utric pattern and PDS O , then lavaged with LRS and returned into the abd. Body wall  
54 closure is in three layers, linea, subcutaneous tissue, skin. Inner layers I choose PDS 2 and skin closed  
55 with Braunamid 8.

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57 Post Operative Care:

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

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

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