

Correcting Malpresentations at Calving

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As a cattle producer, calving season can be the most exciting time of the year as well as the most problematic. We all hope each of our cows will calve on their own, uneventfully, with a live, healthy calf. Despite these wishes, anyone with livestock knows that often times life goes awry and we find ourselves with a prolonged or difficult calving, known as a dystocia. The majority of cattle producers are not technically trained to correct common calving problems but learn through trial and error or by working with those more experienced and gaining techniques that they can then apply in a similar situation. The following proceedings will highlight normal parturition of a cow, provide tips and tricks for when and how to intervene and assist in delivery of a calf.

There are several management techniques that can aid in reducing the prevalence of dystocia on your operation. Areas where management choices can impact the calving season include breeding/mating decisions, age and parity of dams, nutrition, and calving facility or locations. In regards to breeding decisions, it is important to ensure a known calving ease bull is chosen for mating to heifers. In a recent NAHMS survey, heifers were 7.3% more likely to require assistance during calving. Producers assisted 11.6% of their heifers to some degree, while assisting cows 4.3% of the time in the season. Some producers choose to artificially inseminate (AI) their cattle with female sexed semen because heifer calves are generally smaller framed and weigh less than bull calves at birth. It is recommended to keep good records documenting which cow or heifer needed assistance and what level of assistance was required. At the end of the season, you can review the records for any heifer or cow requiring repeated assistance, evaluate their worth and whether they should remain in the herd.

In regards to nutrition, there are no clear guidelines for the adequate amount of energy required in late gestation cows. Each operation has their own capabilities and limitations that they can handle. Additionally there are numerous breed variations that can impact nutritional needs. We do know that over conditioned cattle (BCS > 7 out of 9) have a higher incidence of dystocias and have an increased rate of calf mortality. Conversely, those fed to lose weight in the last trimester of gestation also had an increased calf mortality rate. In general, the ideal BCS for late gestation cattle is 5-6 out of 9.¹

The other topic mentioned, calving facilities or location, can certainly play a role in your calving season. It is out of the scope of this proceedings but work with your herd veterinarian and extension agents to help layout the best fit for your operation.

Parturition

There is an old saying in regards to the timing of parturition, “the calf determines the day, and the dam determines the hour”. But the length of gestation is dependent on several factors including genetics, fetal sex, and birth weight. The average gestation length in the US is approximately 283 days. There are several reports showing males have a 1-2 day longer

gestation lengths in addition to repeatedly having a higher birth weight.² Additionally, there are breed differences that impact gestation length. Terminal cattle breeds (Beefmasters, Charlois, Limousin, etc.) often have larger birthweights than more traditional maternal cattle breeds (Angus, Herefords, etc.).¹

Regardless of gestational factors, once the cascade of parturition begins, it is a continual process and occurs in three stages. The first stage includes relaxation and dilation of the cervix as the calf rotates into position. These changes and movements often cause the dam to be restless. She may isolate herself from the rest of her herd mates. During this stage, the calf will enter the cervix. Stage one can last 2-8 hours. The second stage begins with rupture of the allantoic sac, or water bag. During this stage, the dam will have strong uterine contractions with delivery of the fetus. This stage generally lasts 30 minutes (cows) to four hours (heifers). Stage three labor consists of expulsion of the fetal membranes, which commences once the fetus is delivered (ideally within 12 hours).³

Any delay or prolongation in progression of stages one or two of labor are considered abnormal. There are several factors that can influence dystocia rates including fetal causes, maternal causes, management practices, or a combination of these. Fetal causes include abnormal presentation, position, and/or posture of the calf as it enters the birth canal, congenital abnormalities or fetal monsters. Maternal causes include irregularities of the birth canal, delayed or failed cervical dilation, uterine inertia, and metabolic abnormalities. Management causes may include improper mating decisions (not using proven calving ease bulls on heifers); nutrition decisions resulting in over – or under – conditioned cattle; and overcrowding of the calving area.

Each producer handles dystocias differently based on experience level, equipment, resources, and ability to call in assistance. Using the general guideline of progress every hour, you, the producer, can help determine points of intervention. This becomes especially important during stage two labor. If progress is not made hourly, the dam should be examined. The following is the general approach the author takes for successful dystocia management.

Restraint

Regardless of how docile your cow or heifer may be, she needs to be restrained for everyone's safety. Motherhood can bring out a whole new side to a dam as their protective instincts engage with labor and the sight of a newborn calf. Ideally, the gold standard for restraint is a chute with both sides that open. This allows options for manipulating the cow, especially if she lies down during extraction of the fetus. Additionally, if assistance is necessary for getting the calf to nurse, this allows safe restraint while having access to the udder.

If no chute is available, some form of head lock or restraint is necessary for your protection. Place a halter on the cow and tie her low and loosely with a slip knot through the head gate. This allows for easy release and prevention of strangulation if the dam goes down during manipulation.⁴ If no head catch is available, and the cow is already down in the pasture,

place a halter and tie her head to a back leg with a slip knot. Otherwise, have an escape plan for when she gets up.

Palpation

Once restrained, it is important to clean the cow's vulva before vaginal assessment. Wearing OB sleeves is recommended as there are numerous zoonotic diseases that can be transmitted during parturition, and especially during abortions. Cleanliness is important during calving to reduce the risk of disease in the dam and to the calf. Unfortunately, cows do not always choose the most ideal calving locations. Using a feed sack, floor mat, or tarp under her hind quarters can help decrease contamination as you palpate and assist the delivery. Additionally, lubrication will be your best friend in any dystocia. Regardless of stage of parturition, applying generous amounts of lube to your gloved hands and arms will help with delivery of the calf and may reduce injury to both the dam and calf.

Vaginal palpation will allow you to assess cervical dilation, calf viability, and the presentation, position, and posture of the calf. If you cannot palpate through the cervix or cannot feel the calf present vaginally, then a rectal palpation is warranted. With a rectal palpation, one can evaluate fetal parts, their location and determine if a uterine torsion has occurred. During a uterine torsion, the uterus will be twisted to one side and the broad ligament that suspends the uterus will feel like a tight band. Veterinary assistance is recommended if torsion is suspected.

When you palpate, a key to success is to use both arms. Depending on the calf's orientation, you may be able to manipulate better with one arm versus the other. Heifers, especially, have tight vaginal canals potentially making extraction of the calf more difficult. Using both arms, you can manually stretch the vaginal canal to prevent tears and aid in ease of delivery. Apply pressure with both arms to the lateral aspects (right and left walls) of the vaginal canal for several minutes to stretch the vaginal canal. The more time spent stretching and dilating the vaginal canal, the lower the incidence of vaginal tears and the easier it is to extract the calf. If the calf can fit through the bony pelvis, it will make it through the vaginal canal.

Knowing the calf's presentation, position, and posture will allow you to formulate a plan of safest and fastest calf removal. The normal presentation of a calf in the birth canal is the head coming shortly after the appearance of both front limbs extending forward (also referred to as cranial presentation). Sometimes hind limbs present first (posterior presentation). It is important to decipher whether the front limbs or hind limbs are present prior to extracting the calf. When calves are presenting in a cranial presentation, their front toes/hooves are pointed down (Figure 1 and 2). Additionally, front limbs have an extra joint (carpal joint/front knee) between their fetlock joint and their elbow. If the calf presents backwards, their toes/hooves will be pointed up (can see the bottom of the hooves first). Furthermore, when palpating hind limbs, there is not an extra joint between the fetlock and the hock. Be aware, elbow and hock joints can feel similar in a blind palpation. It is important to know whether forelimbs or hind limbs are presenting. In the instances of twins, multiple limbs (more than 2) may be present at one time. Thorough palpation will assist in determining if the limbs belong to the same

calf or different calves. If in doubt of what you are feeling, call your veterinarian for assistance.

Manual Extraction

The most common cause of dystocia is fetal-maternal mismatch (calf too big/cow too small) and heifers have an increased incidence.⁵ To determine if the calf will fit in the birth canal, the calf should be engaged in the pelvis so assessment of shoulder or hip width can be made. The shoulders and hips are the widest part of the calf. This can be accomplished by pulling on the legs presented, front or hind, until they are through the pelvis. The author will use both arms to palpate around the calf. As the author's arms pass by the ilial wings (sides of the hip), if they deviate laterally to get around the calf, it proves the calf's shoulders/hips are wider than the cow's pelvis, and it is NOT going to continue any further through the birth canal. Another sign the calf may be too large is the crisscrossing of the calf's legs as they enter through the pelvis and vaginal canal. A calf presenting posterior should fit if its' hocks successfully pass through the vaginal canal and are visible out of the vulva. If the calf is too large, the plan needs to change to either a cesarean section or fetotomy, depending on calf viability, cow value, etc.

In the author's OB toolbox, there are three long (60 inch) chains and two handles. You may not always need the extra length of the chain, but it can be a life saver when you do. Chains should be placed with a loop above the fetlock and a half-hitch placement below the fetlock prior to applying pulling pressure (Figure 1). The author places an OB chain on whichever limb(s) can be accessed. Some people choose to use straps or rope to pull calves. Those work fine, however, the author prefers chains as they are easier to clean and disinfect between cows. Even if the calf needs to be repulsed (pushed) back into the uterus for further manipulation, it is recommended to place a chain on any limb accessible. It is much easier to retrieve a limb if there is already a chain around it.

In anterior presentation, the head may warrant a handle if it is not resting between the front limbs. Head snares can be great because they are convenient to use and slip over the poll and ears easily. If a head snare is not available, a chain can be used in the same manner, making a large loop prior to placing it over the calf's poll, behind the ears, and cinching it within the mouth (Figure 2). Do not use the head as a primary pulling point, only the limbs should be used. The head snare/chain is to assist in keeping it in its correct position during extraction.

There will always be the dystocia where there are no hooves within reach in the vaginal canal (breech (tail only); suicide dive out (forward/ cranial presentation with flexed shoulders). In these scenarios, it is recommended to re-palpate and attempt to reach one or both of the displaced limb(s) and bring into the vaginal canal. Sometimes it helps to place a chain on the flexed limb to aid in adjusting the leg into the birth canal. Take one end of a chain into the uterus, place it over the top or outer aspect of the desired limb to ensure the end drops down around the limb. Then palpate under that limb (in the inguinal area or arm pit of the calf) and pull the end of the chain through and back out to complete the loop encompassing the limb. (Another reason to have several long chains.) After making the loop, ensure you are clear of uterine tissue, and cinch down near a joint. Now you have a handle on that limb and can

work to retropulse the calf into the uterus, allowing more room to manipulate the limb into the pelvis. As you progress in manipulating the retracted limb, move your chain down the limb towards the next joint. Pulling on the chain while retropulsing the calf back has been successful for breech calves for the author. As stated before, if any of the steps are out of your comfort level or what you feel does not make sense, call your veterinarian for assistance.

As you work diligently to get the calf extracted, monitor your progression. Every fifteen minutes you should be making progress. If not, change your approach. Stop and re-assess the situation to determine what you can change. If limbs are out and force is being applied, there should be progression with increasing visibility of the calf. If not, you need to reassess the calf and determine what is hindering progress. Ask yourself, is the calf small enough to make it through the pelvis? A simple trick to help extract the calf is to rotate the calf 90 degrees as it is coming out of the vagina to align the widest part of the calf (calf's pelvis) with the widest part of the cow's pelvis to prevent hip lock (Figure 3).

How much pressure/force is too much? Historically, it was taught to apply the force of two strong men/three strong women on the calf. In general, one person on each limb with adequate strength is acceptable for forced vaginal extraction. One key to success is to apply force when the cow has contractions. When the cow rests in between contractions, keep tension on the chains but wait to pull when another contraction occurs. Working with the cow generally has the best outcome for the cow and calf. An anterior presenting calf does not have to be extracted at lightning speed. Slow, steady progress is ideal. For posterior calves, timely extraction is required. As the calf's pelvis enters the cow's pelvis, the umbilicus will be occluded and/or break, stopping the calf's oxygen supply. With removal of its only oxygen source, it becomes a more time sensitive situation as the calf is trying to breath in the uterus.

A calf-jack can be a valuable piece of equipment to have available. Two strong people can apply upwards of 500 pounds of pressure. However, it should be used with caution. A calf jack can apply at least 1000 pounds of pressure, which can easily break bones, dislocate joints, and cause significant damage to the cow and/or calf, if used incorrectly. The calf jack should not be utilized because you are needing more power in pulling. It should be used as a relief tool for you, by holding the calf steady while you wait for another contraction or re-evaluate progression within the vaginal canal. There are several types of calf jacks available. The author prefers a double ratchet setup with two hooks, alternating pressure on each limb. This ratcheting will 'walk' the calf out. Additionally, there is usually a third hook for the head chain that helps keep it in place and progressing with the limbs. The author has found the best execution of the calf jack (when the cow is standing) is to apply multiple ratchets to tighten the chains, followed by slow downward pressure on the bar for 20-30 seconds Return the bar back perpendicular to the cow and repeat. This allows gentle pressure to be applied to the calf followed with stretching of the vaginal canal as the calf progresses out.

Come-alongs and rope pulleys are common alternatives to calf jacks. They can be utilized in the same manner as a calf jack by attaching one end to a solid, immobile structure behind the cow. The same principle of slow ratcheting and rest intervals apply. Regardless of the

device, if you are not making progress of increasing visibility of calf, you need to palpate and determine what needs to be changed, adjusted, or call for assistance.

Post extraction

Once the calf is delivered, place them on their sternum (belly) with front limbs extended or flexed underneath. It is recommended to clear their airways and stimulate them to breathe by rubbing vigorously on their rib cage. Additionally, sticking a clean piece of straw into its nostrils can induce sneezing which will displace fluid and mucus from their nasal passages. Clean debris out of its nostrils and mouth as necessary. A general physical examination should include evaluating umbilicus for excessive bleeding or hernia, ensuring there is a patent anus (rectum opening), and no cleft palate.

Evaluate the cow after the calf has been assessed and stable. Palpate the uterus for another calf, any tears, and then coarse the vaginal canal for any tears as your hand exits. If tears are noted, please call your veterinarian for medical or surgical assistance. The placenta will still be partially attached. Do not try to manually pull the placenta out at this time. Gentle traction to get the placenta into the vaginal canal is all that is necessary. It should come out on its own with most live calf births. Monitor the cow for eating, drinking, mothering ability over the next several hours to days. If any signs of abnormalities or ill-thrift in either the cow or the calf, call your veterinarian and have them examined.

Conclusion

Each dystocia can present differently, but the goal is a live cow and calf. The tips and suggestions presented in these proceedings are the result of personal dystocia experiences. Each producer has their own comfort level with dystocias. Early intervention is the key to a successful calving, so if you have any questions, or if something does not feel right, do not hesitate to call your veterinarian for assistance.



Figure 1: Chain placement above and below the fetlock.



Figure 2: Chain placement around head and into mouth. Also referred to as a head snare or 'war bridle.'

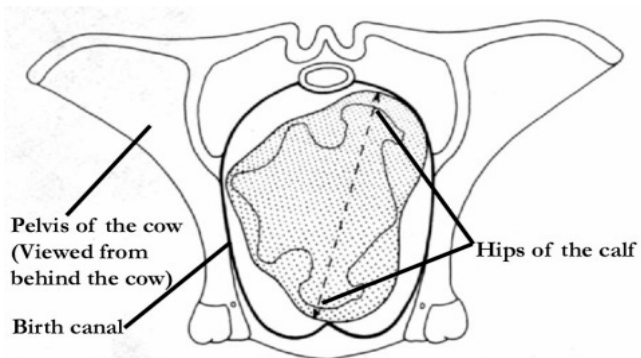


Figure 3: Image depicting rotation of calf pelvis entering through the widest area of the cow's pelvis to prevent hip-lock.⁶

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