

# MANAGING CALVING PROBLEMS

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Within this manuscript you will find answers to the seven most important questions on how to handle a heifer or cow engaged in a difficult birth (dystocia). These questions include:

1. What are the causes (risk factors) of dystocia?
  - Knowing the reason for the calving problem you are facing helps in solving it.
2. What are the steps in a normal birth?
  - You must know in detail the 3 stages of labor: how long each one lasts, the events taking place in the reproductive system and the outward signs shown by the female in labor. For example, stage 2 of labor, expulsion of the calf, normally lasts 30 to 45 minutes in cows and 45 to 60 minutes in heifers. That means if the water bag has been out (the appearance of the water bag indicates the start of stage 2) for over an hour in a heifer, she needs help delivering a live calf.
3. When should I catch up a heifer or cow from the calving pasture and examine her birth canal to see if she needs help?
  - This is the "when to intervene" question.
  - Well, knowing the steps in a normal birth enables you to decide when a birth is abnormal! Situations that require intervention are listed in the manuscript.
4. How can I tell if a large calf can be delivered through the birth canal?
  - The "Traction Test" developed at the University of Utrecht in Holland and described below is a very objective way to tell if it is possible for the calf to be delivered through the birth canal.
5. What is the proper way to deliver or "pull" a large calf?
  - Details are discussed in the manuscript.
  - The key to prevent hip lock, rotation of the calf's hips, is described.
6. When should I call my veterinarian for help?
  - Unsuccessfully trying to deliver a calf and not giving up soon enough can result in a dead calf when the veterinarian is finally called.
  - Three situations that require veterinary aid are described below.
7. How do I care for the newborn calf to insure its survival?
  - Any calf I deliver will get colostrum via an esophageal feeder. I want it to absorb antibodies that prevent it from dying from an infectious calfhood disease.
  - The manuscript describes other important treatments to get a newborn calf off to a good start.

## **ANSWERS TO THESE QUESTIONS WILL SAVE CALVES' LIVES!!**

### **I. What are the causes of dystocia?**

- A. **The most common cause of dystocia is lack of compatibility of fetal size with pelvic area**

1. Fetus too large
  - a. *Most important single factor*
  - b. In first-calf heifers a high incidence of dystocia occurs when the fetal weight exceeds 70 lbs. No matter how big the pelvic area
  - c. Birth weight is a *moderately heritable trait* ( $h^2 = 0.3 - 0.4$ )
2. Pelvic area too small
  - a. Common problem in first-calf heifers
  - b. Problem is that the size of a heifer's body is not highly correlated to the size of her pelvic area. The pelvic area must be measured internally to identify heifers with very small pelvises.
  - c. Calf birth weight accounts for twice as much of the variability in dystocia rate as dam pelvic area

**B. The second most common cause of dystocia is an abnormal presentation**

1. Anterior presentation
  - a. Elbow lock
  - b. Leg back
  - c. Head back
2. Posterior presentation
  - a. Leg back
  - b. Breech

**C. Less common causes**

1. Vulvar constriction
  - a. Occurs in first-calf heifers
2. Uterine inertia
  - a. Low energy diets during last trimester
  - b. Milk fever of dairy cows (hypocalcemia)
  - c. Zinc deficiency
  - d. Hormonal imbalances
    - Sires have been found that produce fetal genotypes that depress maternal estrogen
3. Failure of cervix to dilate
  - a. Mainly a problem in first-calf heifers
4. Uterine torsion

**II. What are the steps in a normal birth?**

**A. Normal birth (eutocia) has 3 stages**

1. Stage 1 (Getting ready)
  - a. Duration
    - (1) 2 to 8 hours
  - b. Events
    - (1) cervical dilation
    - (2) fetal positioning

- (3) fetus enters birth canal
  - c. Signs
    - (1) off by herself
    - (2) restlessness, lay down/get up, tail swishing
    - (3) occasionally, kick stomach
- 2. Stage 2 ("True labor")
  - a. Duration
    - (1) 45 to 60 minutes in first-calf heifers
    - (2) 30 to 45 minutes in cows
  - b. Events
    - (1) fetus is expelled
  - c. Signs
    - (1) amniotic sac ("Water bag") appears as first sign
    - (2) dam lays down
    - (3) feet and nose appear
    - (4) abdominal contractions expel fetus
- 3. Stage 3 (Expulsion of placenta)
  - a. Duration
    - (1) 1 to 8 hours
  - b. Event
    - (1) placenta expelled
  - c. Signs
    - (1) placenta no longer hanging from dam

**B. Heifers or cows should be caught up and examined for calving problems when any of the below situations arise.**

**"CRITERIA FOR INTERVENTION"**

- 1. Stage 1 longer than 6 hours
  - a. Seen with
    - (1) malpositioning
    - (2) uterine torsion
- 2. Stage 2 prolonged
  - a. "Water bag" observed for 1 hour and no calf
  - b. Straining for 30 minutes and no progress
  - c. Stopping to rest for 30 minutes or more
- 3. Obvious abnormality
  - a. Tail protruding from birth canal (breech presentation)
  - b. Only 1 leg showing
  - c. Large amounts of hemorrhage

**C. Early - assisted deliveries**

- 1. Traditionally heifers or cows have been allowed 2 hours in Stage 2 before intervention.
- 2. Research trials have shown that in well-managed herds, sooner

intervention, i.e., go help the cow or heifer immediately on observation of feet protruding from the birth canal, has benefits to calf and cow health.

- a. This is called "early-assisted delivery" or "early intervention"
3. Advantages compared to traditional guidelines for intervention:
  - a. Reduced calf losses
  - b. Increased first service conception rates
  - c. Increased pregnancy rates

**D. Calving season herd checks**

1. Maximum intervals of 3 hours between observations are needed to properly carry out the guidelines for intervention

**III. What is the proper way to deliver a calf?**

**A. Maintain cleanliness and use lubrication**

1. Wash hand and arms with disinfectant soap
2. Wash cows perineal area with disinfectant soap
3. Plastic OB sleeves optional
4. Use lubrication on hands and arms (Not soaps which cut fats and oils and cause friction so are not as good as obstetrical lube. Soaps are used for cleaning, not lubrication!)
  - a. Liquid OB lube or powdered J lube

**B. Examine birth canal**

1. **Relaxation and dilation of birth canal**
  - a. Vulva
  - b. Vagina
  - c. Cervix
2. **Presentation of calf**
  - a. Anterior/posterior
  - b. Abnormal
3. **Determine if fetus is alive – Several reflexes:**
  - a. Interdigital claw reflex – pinch skin between toes
  - b. Nursing/swallowing reflex
  - c. Eye reflex – slight pressure on eyeball
  - d. Anal sphincter reflex
4. **Size of calf relative to size of birth canal**

**C. CRITERIA TO DETERMINE IF DELIVERY VIA BIRTH CANAL IS POSSIBLE**

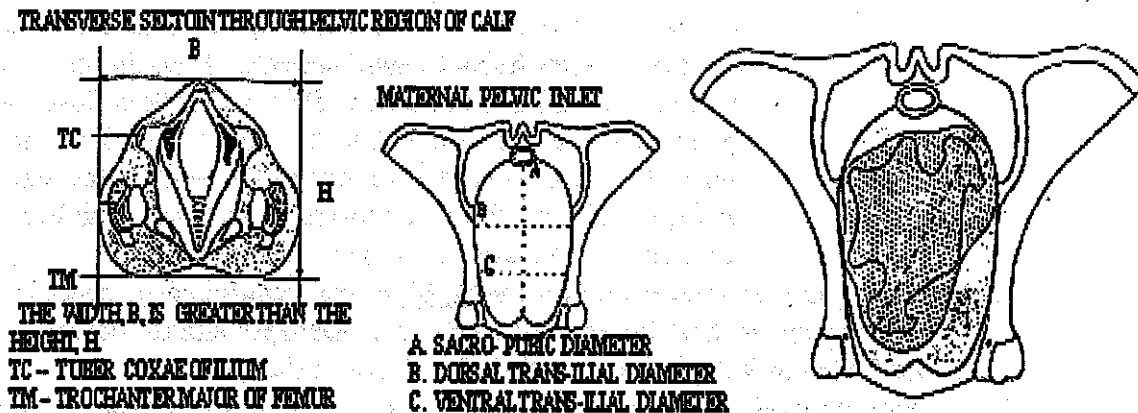
1. **First, birth canal must be fully dilated.** If it isn't it must be manually dilated.

- a. Clasp both hands together, fingers interlocked and arms parallel, and insert them into the birth canal. Apply persistent force against the undilated birth canal until it dilates. May take up to 20 minutes
2. **Second, abnormal positioning of the fetus must be corrected. Remember, correction of abnormal presentation is easiest when the heifer or cow is standing.**
  - a. **Elbow lock**
    - (1) Repel fetus to relieve impaction of elbow against pelvic brim. Pull locked leg up into pelvic canal. **Correction very easy - a freebee!**
  - b. **Lateral deviation of head**
    - (1) Repel fetus with 1 arm or a toilet plunger and pull the head around to normal position with the other arm. This can be easy or excruciatingly difficult to correct. Eye hooks may be needed to pull the head with enough force to correct the problem.
  - c. **Leg back**
    - (1) This can be either forelimb or hindlimb - forelimb more commonly. Correction is called the "**flexed carpus manipulation**": the fetlock is grasped and at the same time flexed and twisted to pull the foot inward toward the calf's body and force the knee outward, forward, and up. Fingers must be placed over the hoof as it is pulled over the uterine wall forward to prevent damage to the uterus
    - (2) For a hindlimb back or if both hindlimbs are back (the true "**breech presentation**") which is more common, the pelvis of the calf is repelled forward and upwards to make room for the "**flexed hock manipulation**". Flex the hock and force it forward and outward while the fetlock is flexed and pulled back up toward the birth canal. One hand must guard the hoof to prevent injury to the wall of the uterus. An epidural nerve block to decrease the force of abdominal contractions makes this correction much easier.
3. **Third, the cow should be cast in right lateral recumbency, because for delivery of a calf, abdominal contractions are stronger and the pelvis of the heifer or cow dilates the best when the dam is in that position.**
4. **Fourth, hook obstetrical chains to the 2 protruding limbs. Correct way: place a loop of chain above each fetlock joint and a half-hitch of chain below the fetlock in the pastern area. The newer nylon straps can be used instead of OB chains.**
5. **Fifth, thoroughly lubricate the fetus and birth canal. (Important!!)**
6. **Finally, apply "TRACTION TEST" to DETERMINE IF THE CALF CAN BE DELIVERED THROUGH THE BIRTH CANAL.**
  - a. **Anterior presentation - Front feet (bottoms facing downwards) and head first**

- (1) Pull the bottom leg (the fetus's left when the cow is in right lateral recumbency) until the fetlock joint is 1 hand's width past the lips of the vulva. This is easy to do in all cases. The first shoulder of the calf will have passed through the pelvic ring (the ilium) of the dam. Have someone apply traction to the chain to hold the fetlock in that position. **Remember to only apply traction when the dam strains.** Now, apply traction (limited to the force of 1 man) on the other fetal limb to see if a second fetlock can be pulled 1 hand's width past the vulva. **EXTRACTION THROUGH THE BIRTH CANAL IS POSSIBLE ONLY IF BOTH FETLOCKS CAN BE PULLED 1 HAND'S WIDTH PAST THE VULVA.** That means both shoulders have passed the maternal pelvic ring and are now sliding through the birth canal.
- (2) If both fetlocks can't be pulled a hand's width beyond the vulva, a cesarean section or pubic symphotomy (if calf is alive), or a fetotomy (if calf is dead) is indicated.

b. **Posterior presentation - hind feet first.** Telltale signs: only see feet and their bottoms are facing upwards

- (1) First, rotate the fetus 45 to 90 degrees so the widest part of its hips (*side to side*) are lined up with the widest part of the maternal pelvis (*top to bottom*) - see diagram.

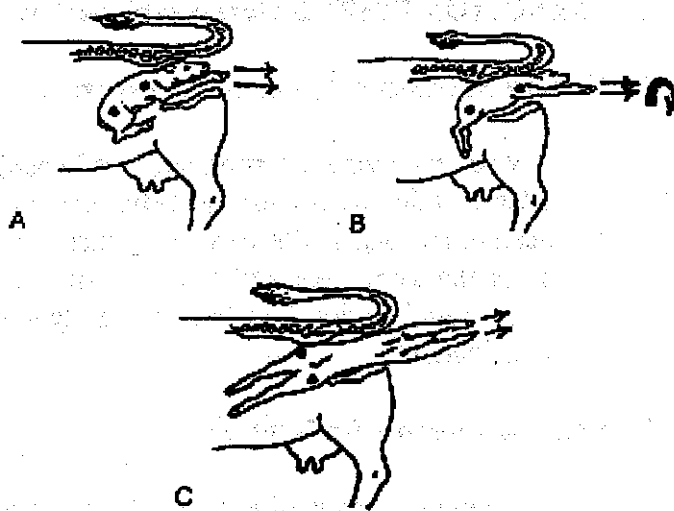


- (2) When the cow is pressing, 2 assistants (1 on each leg) apply traction slightly upwards and backwards to pull the fetal hips through the pelvic ring of the dam. **EXTRACTION THROUGH THE BIRTH CANAL IS POSSIBLE ONLY IF BOTH HOCKS CAN BE PULLED 1 HAND'S WIDTH PAST THE VULVA.** That means the fetal hips have passed the maternal pelvic ring and are sliding through the birth canal.

## D. DELIVERY OF CALF

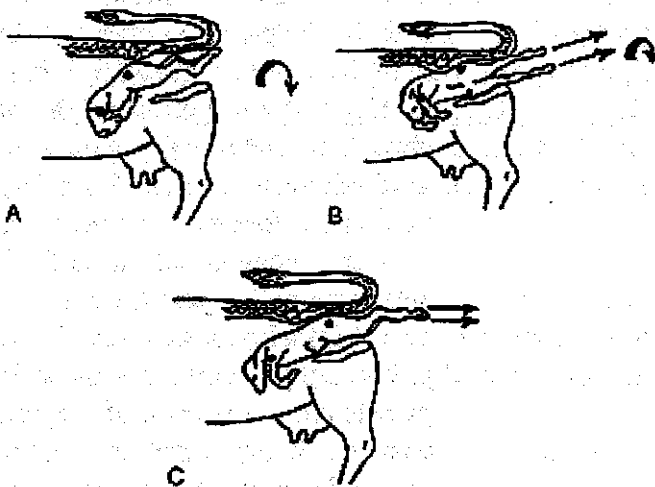
### 1. **Anterior presentation**

- a. Ideally the cow will be in right lateral recumbency, the calf and birth canal will be well lubricated and OB chains will be on each forelimb. With 1 person on each leg, pull straight back on the left leg of the calf until the fetlock protrudes 1 hand's width past the vulva, and do the same with the right leg. The forelegs and head will now be past the vulva. **At this point the front end of the calf must be rotated 45 to 90 degrees to line up the widest part of the hips of the calf with the widest part of the dam's pelvic ring.** This can usually be accomplished by traction on the forelegs in different directions. With large calves, it may be necessary to pull on the forelegs plus reach inside the birth canal and twist the neck and shoulders of the calf. Then the hips of the calf should be able to be pulled past the dam's pelvic ring. If it won't come, you have **hiplock**. ***Don't panic and hook up the 1 ton-force calf puller!*** Stop and allow the calf to breathe. Then reach in and palpate along the back of the calf to see if its pelvis is rotated far enough. If not, repel the calf and rotate. Then with 3 persons pulling back and a little upwards, extract the calf. If that doesn't work, pull the calf around vigorously toward the cow's flank. That will rotate the calf's pelvis to lead 1 hip through the cow's pelvic ring ahead of the other, and often breaks the hiplock to allow the calf to be delivered. See diagram.



2. **Posterior presentation** - First, the fetus is rotated 45 to 90 degrees by

crossing and then twisting the rear legs. Two people then apply backwards and slight upwards traction while the cow or heifer is pressing to pull the calf's hips through the dam's pelvic ring. If, the hocks can be pulled a hand's width past the vulva that is accomplished. The calf is then rotated back to normal up and down position and delivery is accomplished fairly rapidly. Time is important because the umbilical artery and vein are now crushed shut against the dam's pelvis and the fetus can't breathe when the head is inside the uterus.



**IV. When should I call my veterinarian for help?** Many calves have been lost because the owner failed to call the veterinarian in time to deliver a live calf. Thus, a good understanding of the situations when a veterinarian should be called is highly important! Call your veterinarian for help when:

1. **"TRACTION TEST" indicates calf can't be delivered via birth canal.**
2. **You try 30 minutes and make no progress.**

- You know what's wrong (eg. head back) and you know what to do, but after 30 minutes you are no better off than when you started. You don't need to try longer; it's very likely that if you try another half hour you will be at the same spot and the calf will be weaker. Thirty minutes is the magic number; don't try longer. Thirty minutes and no progress: call your veterinarian!

3. **You don't know what's wrong.**

- If you have any confusion at all: call your veterinarian!

**V. How do I care for the newborn calf to insure its survival?**

1. **Initiation of breathing**



- a. Tickle nares with straw
  - b. Lateral pressure over heart
  - c. Rub all over
  - d. Turn over from side to side
2. **Iodine navel**
- a. 7% tincture of iodine
  - b. Inside and outside of umbilical cord
3. **Optional injections**
- a. Vitamin A
  - b. Selenium
4. **Give colostrum**
- a. Milk dam
  - b. Tube calf with esophageal feeder or allow calf to nurse colostrum
  - c. Volume
    - (1) beef calves: usually **2 quarts** (3 quarts for large calves)

**GOOD LUCK WITH YOUR CALVINGS!!**