

Farmer's perspective in management of dystocia: A life threatening condition in cattle

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Dystocia (difficult birth) is one of the common abnormal conditions occurring in dairy animal during parturition. The condition may result in loss of calf and dam, or both with great reduction in fertility. Often dairy farmer is burdened with a cow with significantly compromised fertility and milk producing capacity. The economic losses are further compounded by exorbitant cost of veterinary care, and severe drain on his meager resources such as time, space and man power. Despite such limitations, adoption of recommended management practices and awareness on part of dairy farmers about calving process, and points of interventions at calving can help to minimize losses arising from calving difficulties in his dairy herd.

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A dairy farmer's ultimate dream is to get a normal healthy calf from the dam with minimal post parturient complications. A healthy calf besides a healthy cow has a telling effect on the income generation from the dairy enterprise. This is achievable by managing the events of parturition (calving) which are very critical for the health of calf as well as dam. This is more so because any deviation from normal parturition (dystocia) severely impacts productive and reproductive efficiency of dam and calf. Moreover, the complications arising from difficult birth may turn out to be life threatening to both the calf and the dam.

In dairy cattle, difficulty in calving may have its origin in maternal (such as pelvic bone fracture, uterine fatigue etc.) and fetal factors (such as fetal abnormalities). However, occasionally faulty management practices may predispose the parturient cow to experience difficult birth. Among many factors, inadequate/ deficient feeding of heifers/ young calves at early age is an important cause of dystocia in heifers as it may lead to underdeveloped

pelvic structures. This, coupled with underage breeding causing inadequacy of the pelvis capacity is another leading cause of difficult birth in heifers. Also, deficiency of minerals like calcium, phosphorus, and magnesium, vitamins and energy in diet of pregnant animal results in development of secondary uterine inertia during birth. Development of fetal monster due to congenital defects caused by variety of factors like chemical pollutants and viral agents cause difficult birth even in well fed adult cows. Certain variable factors contributing to the dystocia are age, parity, sex of the fetal, environment and season, nutrition, management, weight of the fetal and trait of the sire.

In a study by the Cow Calf Health and Productivity Audit (CHAPA), loss of calf (33%) and decline in fertility due to dystocia was reported up to 15.4%. The loss of calf crop and decline in fertility are direct outcome of the fetal and maternal factors. Such losses increase further owing to reduced production, cost on the veterinary care, significant reduction in reproductive efficiency,

and post dystocia complications such as metritis, retained fetal membranes, and predisposition to still birth/ early embryonic death in future pregnancies. Moreover, calf born out from difficult birth may have below optimal growth performance.

The maintenance of optimum reproductive efficiency is critical and important for the successful and profitable dairy farming. It is therefore, essential that farmers are well aware of the normal calving process and events related to it. This shall help them to adopt remedial measures in time to save the lives of dam and new-born, and derive maximum benefits from dairy enterprise.

PRENATAL CARE

Adequate care of pregnant dam before calving (prenatal period) goes a long way in minimizing calf mortality and losses due to reduced female fertility. These are detailed below:

General management practices for prenatal care

- Confine the pregnant cow during

second half of pregnancy to the loosebox or calving pen to prevent injury from by others cow

- Clean the designated calving pen with non-reactive chemical agent or detergent
- Provide a dry period (rest period) of about 45-60 days from expected date of calving (EDC) by totally stopping milking
- Strictly follow the recommended nutritional diet ration during pregnancy period
- Provide 1-1.5 kg extra feed to the pregnancy cattle from 6th months of gestation
- Additionally, very high yielder cows may require feeding of 300-500 g of extra ration from 2-3 weeks of EDC
- Provide additional green fodder at the rate of 2-3 kg during the dry period to pregnancy animals to provide for maximum fetal growth in this period
- Avoid feeding oral calcium supplements from two weeks before EDC

Specific management practices for prenatal care

Some of important specific prenatal management practices for pregnant dam are as follows

Minimizing summer stress

Managing summer stress to a minimum is important to avoid drop in milk production and fertility. Use of electric fans, provision for ventilators, and if required extra cooler can help in reducing the negative effect of summer stress.

Adequate feeding space

Animals require sufficient walking spaces to prevent overgrowing of hooves and metabolic diseases. Inadequate feeding space may prolong feeding time of animals or it may consume feed considerably less than what is recommended for it. A feed bunk space of 36 inches is considered sufficient for one cow.

Adequate resting space

Pregnant animals would be forced to stand for prolonged time when space for resting is inadequate. This situation predisposes the cow to hoof



Fig. 1. a. Relaxation of sacroscopic ligament. b. Swelling of external genitalia in near parturient cow

issue injuries resulting in lameness. The resting space should be neat, dry and clean, more so because animal has lower immunity during gestation period. Unhygienic resting places are a potent source of pathogens causing mastitis and metritis post-calving.

Addition of new stock

Cows are known to maintain social hierarchy among themselves. These social hierarchies are maintained for ease of feeding and serve as a good stress buster to the animals. Introduction of any new animal in the established herd is sure to disturb the social hierarchy which might affect pregnant dam more severely. It is, therefore advisable to avoid adding any new animal in the group of pregnant animals.

Once a pregnant dam approaches calving date dairy farmer needs to maintain much closer relation with the animal. This is vital for ensuring normal birth and to offer assistance in case anything goes wrong with the calving process. It is also important that dairy farmer is well aware of the signs of approaching calving.

Approach to calving: signs and management practices

- About 2-3 weeks before calving pregnant cow would show enlargement of udder, swelling around naval region and movement of fetus could also be observed in flank region.
- About 1-2 days before parturition, cow would show typical behavioral signs such as restlessness, loss of appetite,

anxiousness, kicking of abdomen, and isolating itself. Dairy farmer must observe the pregnant animal every 2-4 hours to correctly judge the situation. Relaxation of sacroscopic ligament, swelling of external genitalia (Fig. 1) and vulval discharge could also be noticed 24 hours before calving. Once these signs are noticed isolate the cow and look for vaginal discharge and straining.

- The landmark for delivering the fetal is appearance of amniotic sac or fetal leg near or outside birth canal.
- Progress in the calving process with one sign replaced by next one is evident every 15-20 minutes. At this time progressive straining is followed by slow expulsion of the fetal.
- Under normal calving situations, time for expulsion of fetal from amniotic sac to birth is from 70-100 min, whereas time for expulsion of fetal from first appearance of feet is around 65 min.
- On the day of calving frequency of observation must be increased to every 1-2 hour.

PROGRESSION OF CALVING

A progressive dairy farmer must know the various stages of calving to avoid losses due to difficult birth. These stages of calving are explained below

Normal gestation period of cattle is 270 days (average 270-290 days), and in case of twinning the gestation period is less by 6-7 days.

Stage I: Stage of cervical dilation

At this stage, the cow starts straining and isolates itself from that herd. A short while later the allantoic sac ruptures. This is followed by appearance of the amniotic vesicle near the birth canal containing extremities of fetal (Fig. 2). The first stage of calving (cervical dilation) may take 1-8 hours (average 2-6 h). Prolongation of first stage of labour by more than 8 h requires immediate intervention. The characteristic signs of first stage of labour are frequent urination, passing of faeces and discharge, licking own body parts such as legs, back, frequent walking, lying down, standing and raised tail.



Fig. 2. Stage I of calving, appearance of 1st water bag. Also observe greatly engorged udders.

Stage II: Expulsion of fetus

The second stage of calving comprises expulsion of fetus by contraction of uterine and abdominal muscles. The normal duration of stage

II is 30 min to 2 h. The tell-tale signs of Stage II are appearance of allantoic sac or fetal leg outside the vulva and progressive expulsion of fetal parts (Fig. 3). This is followed by expulsion of fetal nose and expulsion of body. In posterior presentation tail is noticed. Complete delivery of fetus signifies the end of Stage II.

Stage III: Expulsion of fetal membrane

This is a stage of separation of fetal membranes from the endometrium due to reduction in blood supply and progressively reduced abdominal and uterine contraction. The duration of Stage III is 8-12 h. However, dairy farmer can wait up to 24 h for complete expulsion of fetal membranes (Fig 4).

Table 1. Complications of Stage I of calving and veterinary assistance required

Complication in the Stage I	Assistance
Incomplete cervical dilatation	Apply manual pressure continuously for 10-15 min and rupture the water bag to reduce the size of the fetal
Uterine torsion	Manually removed by modified schafers method or fast rotation (if less 90°, no need for rotation). Call a veterinarian
Hysterocele	Call veterinarian for surgery
Hydroamnion or hydroallantoin	Need for induction of parturition
Bicornual or unicornual twin	Call the veterinarian

Table 2. Complications of Stage II of calving and veterinary assistance required

Complication in the Stage II	Assistance
Leg back (anterior presentation with shoulder flexion)	Apply lubricant on head and leg present on vulva, and retained leg is traction by snare
Head back (anterior presentation with lateral deviation of head)	The finger placed into eye socket or calf mouth, alternatively apply the snare around the lower jaw and traction
Breech presentation (posterior presentation with bilateral hip flexion)	Try to correct the normal posterior presentation
Uterine inertia	Follow the calcium therapy if fully dilated cervix cases
Fetal oversize	Episiotomy



Fig. 3. Stage II of calving: Appearance of fetal legs at vulval opening.

Miscellaneous practices to reduce the incidence of dystocia

- The length of gestation indirectly influences the dystocia. In general the gestation length increases in male calf due to increased body weight and size of the fetal
- The gestation length varies in different breeds of cattle e.g. Holstein Friesian 279 and Charolais 290 days. Therefore it is advisable to select a bull for breeding based on short gestation
- The trait like easily calving should also be considered while selecting a bull for insemination
- Since monsters invariably cause dystocia it is advisable to avoid feeding grasses sprayed with insecticides
- Reduced mobility of animals is linked to dystocia in cattle (stallfed vs housed). Therefore, provide adequate exercise, mobility and avoid psychological stress by allowing grazing for some time
- Regulate fetus size by balanced feeding
- Heifers should only be bred once they attain appropriate body weight
- Criteria for selection of new animals should also include history of parturition.



Fig. 4. Stage III of calving: Image above shows fetal membranes hanging from external genitalia of a recently calved cow



Fig. 5. Prolapse of uterus with fetal membranes

Table 3. Complications of Stage III of calving and veterinary assistance required

Complication in the Stage III	Assistance
Retained fetal membrane	Provide green grass or bran with jaggery
Uterine tear or rupture	Monitor the cow for any bleeding after veterinary care
Vaginal tear or rupture	Monitor the cow and apply the ice pack if it is bleeding
Milk fever	Provide calcium supplements
Sciatic nerve paralysis	Provide hot fermentation on both the thighs
Uterine prolapse with foetal membrane	Do not allow to dry, and cover the uterus by soaked gunny bags.

When to call for veterinary assistance

- If cow is excessively fatigue or exhausted with symptoms like swollen tongue or expelling the tongue and shrunken eyeball
- If water bag present in vulva for more than 2 hours and no further progression
- Cow strained for more than 30 min but no further expulsion of fetal
- In case of retained fetal membranes
- If continuous bleeding form reproductive tract indicating uterine-rupture or -tearing.
- Prolonged time of recumbency either ante-partum and post-partum
- When fetal monsters are visible at vaginal opening which require immediate caesarian section for saving the dam

Post dystocia management of calf and dam

- Provide some lukewarm water to cattle for drinking

- Remove excess mucous from the nostril and rub the calf using rough cloth to stimulate the respiration
- Watch the expulsion of placenta to avoid the eating of placenta by cow
- Provide colostrum to the calf within 2- 2 1/2 h of calving
- Clean the peri-anal and vulval area with some lukewarm water containing disinfectant to reduce the pain and control the infection in cow
- In cases of retained fetal membranes, feed mixed composition bran and 1 kg powder of jaggery or green fodder to facilitate the expulsion of the fetal membranes
- Cow may be milked three times in a day to reduce the udder inflammation and udder edema
- If dam is in prolonged lateral recumbency call the veterinarian immediately
- Provide minerals such as calcium and phosphorous to prevent milk

fever

- Avoid complete milking at the time of prolonged recumbency
- Encourage the cow to lick the calf to ensure the thermoregulation
- In case of udder edema, apply calcium carbonate powder with lemon to reduce the edema or massage the udder in upward direction for 10-12 min twice in aday
- Allow calf suckling up to 10% of its body weight

SUMMARY

Dystocia is a major, often a life threatening reproductive disorder in cattle and buffaloes. Moreover, since incidences of dystocia are severe drain on the resources a dairy farmer must undertake all preventive measures as explained above to optimize his income from dairy animals. This article aims to equip dairy farmers with awareness and possible aberration during normal calvings. Article outlines importance of early treatment, diagnosis, preventive measures, and nuances of first-aid to be administered by the farmer or a para-veterinarian in cases of dystocia in cows before a veterinarian arrives.

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Know Krishi Unnati Yojana

The *Krishi Unnati Yojana*, a central sector scheme, is envisaged as umbrella programme for focusing on food security, by merging schemes on Soil-health Card, Integrated Scheme on Agricultural Co-operation and Agricultural Marketing, National Mission on Agriculture Extension, Horticulture Development, Price Stabilization Fund, National Mission on Sustainable Agriculture and other programmes.