

Rectal Palpation Instead of Drug Administration: A Natural Approach to Induce Parturition in Delayed Dairy Cows

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ABSTRACT

The objective of this case study was to provide an innovative and practical approach to induce parturition in delayed pregnant dairy cattle. Retained fetal membranes is a common consequence of chemically induced calving, predisposing cows to postpartum uterine diseases such as metritis. In addition, veterinary costs increase following postpartum disorders that may affect reproductive performance of early lactation cows. Therefore, to help optimize cow and calf health and productivity, we recommend that the herein-explained practical-manual-natural approach of rectal palpation be practiced instead of drug administration to induce normal calving in delayed pregnant cows.

Keywords: Delayed Cow; Parturition; Drug; Rectal Palpation; Natural Calving

Method and Discussion

This case study report aimed to provide an innovative and practical approach to induce parturition in delayed pregnant dairy cattle. Chemical calving induction is a process in which parturition is induced by administrating exogenous hormones and corticosteroids. Having a natural calving, however, is important for optimal health and future productive and reproductive performance of dairy cows. In addition, neonatal calf survival and health can be negatively influenced by any disturbances in the natural calving process. Dystocia and premature calf birth can lead to calf morbidity and mortality due to hypoxia and metabolic acidosis. Chemical induction of parturition was initially performed in beef and sheep production systems [1]. Likewise, in some parts of Australia and New Zealand, calving induction is being used in pasture-based dairy systems with seasonal reproductive programs [2]. These programs are planned to maximize pasture use as an economical

feed source. However, induced cows have produced 4% lower milk than those calved normally [2]. Retained fetal membranes is a common consequence of chemically induced calving, predisposing cows to postpartum uterine diseases such as metritis. Therefore, veterinary costs increase following postpartum disorders that may affect reproductive performance of early lactation cows.

Health problems associated with chemical calving induction can also affect animal welfare negatively. Because of these issues, The Australian Veterinary Association (AVA) suggests that the induction of parturition should be cancelled in dairy herds with seasonal calving programs. Additionally, the AVA supports gradual remove of chemical calving induction by 2022. Natural calving process may be postponed in some dairy cows, causing oversized calves and dystocia. This is more noticeable in primiparous cows because they have more difficulty in delivering an oversized

calf than do multiparous cows. As a result, heifers can be culled because of pelvic injuries during dystocia. Moreover, calf loss may occur during severe dystocia. To avoid these problems, induction of parturition may be a useful practice. In other cases such as downer, lame, and under-conditioned cows that are unable to calve normally and timely, the induction of calving would be an appropriate way to reduce the risk of severe dystocia and calf loss. Intramuscular injection of corticosteroids such as dexamethasone alone or combined with prostaglandins (PGF_{2α}) are routine ways to induce calving [3]. In the majority of cases, parturition will happen 45-75 hours after injection. However, these methods do possess undesirable health consequences for both calf and dam.

As a herd protocol in our dairy herd (Behroozi dairy complex, Tehran, Iran), pregnant animals are allowed to naturally calve between 270-282 d of gestation for healthy calving with no manipulation and pulling of calf. After the above time period and if calving has not yet occurred, cows and heifers are monitored via rectal palpation to check calf survival and probable calf malposition. If the calf is still alive, one more day is given to allow a natural calving to occur. In delayed or prolonged calving (i.e., > 283 d of gestation) in both cows and heifers, induction of parturition will be necessary. Instead of chemical induction with administration of dexamethasone and PGF_{2α} analogues that may cause retained placenta and metritis as well as calf health issues and mortality, rectal palpation and moderate stimulation is practiced inducing natural calving. In our experience, natural parturition usually occurs within one- or two-day of rectal palpation. With this feasible and natural method of calving induction, delayed cows are able to calve naturally without any artificial drug administration. It is necessary to emphasize that during palpation and manual stimulation, calf is modestly moved inside the uterus to induce initiation of the parturition process. In our experience, pushing digital part of calf hooves modestly and gently provide suitable stimuli to help the calf move. After this, calf delivery would be expected to occur within 24-48 hours.

Rising cortisol levels immediately before calving has a pivotal role in initiating parturition. Fetal cortisol may be one of the most important physiological modulators that promote parturition in cattle [4]. In addition, maternal cortisol arises as a part of parturition process and stress-like response can be seen during labor [5]. As such, it seems that parturition induction by rectal palpation and manual stimulation of the calf can be a result of fetal cortisol secretion. In other words, we postulate that pushing calf digits in the uterus could induce some degree of stress to the calf which promotes cortisol secretion.

Conclusion

Therefore, to help optimize cow and calf health and productivity, we recommend that the above-explained practical-manual-natural approach be practiced in delayed cows instead of drug administration.

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