

Management of Dairy Cows Following Induced Parturition, Abortion and Dystocia

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Induced Parturition

The induction of parturition with high potency corticoids in dairy cattle at this time can only be considered when in the best judgement of the veterinary practitioner it is of therapeutic value to the individual patient. The label warning of the effective drugs available clearly states that the use in late pregnancy may precipitate premature parturition followed by dystocia, fetal death, retained placenta and metritis. Anyone using these drugs for parturition induction clearly is assuming any liability which may result from such use and presumably has no recourse to the drug manufacturer. The objective of this paper is to discuss the use of products available, their advantages and disadvantages, and the after-care of the individual patient.

Materials and Methods

Two drugs, dexamethasone and flumethasone, are commonly available at this time which can be expected to induce parturition in the dairy cow at a highly effective rate, 85% (1). Increased response has been reported by the use of estradiol benzoate, given in conjunction with either of the two synthetic corticoids (2,3). The standard dosage has been determined to be a single injection of 20 mg of either dexamethasone or flumethasone administered during the last 30 days of gestation. Fetal viability is likely to be increased if parturition induction is delayed until the final two or three weeks of gestation. Cows responding to treatment can be expected to calve between 34 and 60 hours post injection with a mean average of 48 hours plus or minus five hours.

Advantages of Induced Parturition

1. Both the veterinarian and the owner can anticipate parturition within a time period when most effective obstetrical assistance can be rendered to enhance viability of the offspring as well as the well-being of the dam.

2. Reduction in udder edema in certain problem cows as evidenced by induced cows having less edema as compared to untreated controls.

3. Reduction of fetal weight. This is somewhat dependent upon timing of the induced parturition. During the last two weeks there is an increase of approximately 0.5 to 1 lb. per day in dairy cows.

The physiologic response of inducement of parturition with corticoids closely mimics those of normal parturition. Controlled trials indicate there is no higher incidence of dystocias of the treated animals as compared with untreated controls (4,5). In addition, milk production is not significantly affected and post-calving involution and conception rates are not affected, provided close supervision of induced subjects is observed (2).

Disadvantages of Induced Parturition

The single most detrimental result is a higher incidence of retained placentas. Reports indicate one can expect 50 to 80% of the cows induced to retain their placentas for 24 to 144 hours, averaging slightly over 72 hours. The retention of placenta has had no significant effect on involution of the uterus or conception rate as compared with untreated controls, but it must be remembered that the animals which retained placentas in these studies were closely monitored and treated. To my knowledge, there have been no controlled studies in dairy cows in which this was not the case.

Possible Applications of Induced Parturition of the Dairy Cow

1. Prolonged gestation; 2. Suspected oversized fetus; 3. Excessive udder edema; and, 4. Pretreatment to Cesarean section.

The application of induced parturition to both prolonged gestation and suspected oversized fetus is obvious. At times prepartum udder edema becomes a major problem. Missouri work indicates induction of parturition is helpful in preventing and controlling excessive udder edema based upon comparison of treated animals to controls (2). Some practitioners report that dexamethasone or flumethasone administered 24 hours prior to Cesarean section results in improved fetal viability and appears to be beneficial to the dam's post-surgical recovery.

Suggested Management After Induced Parturition of Dairy Cows

Because of the high incidence of retained placenta, close observation and careful management is indicated. In most incidences the placenta will be found to be quite diffusely adhered and it is best not to try manual removal. In the clinical trials at Missouri and

in several others, no attempt was made to manually remove the placenta. The regimen of treatment followed was a conservative approach. If the individual was showing signs of depression and/or a possible septicemic condition, parenteral treatment with antibiotics was immediately initiated. The reproductive tract was not invaded until the individual's general condition appeared clinically normal. If the individual cow was clinically normal after induction and had a retained placenta, the reproductive tract itself was not examined until 72 hours post calving. At this time, if the placenta was rather loosely attached to a few caruncles, it was manually removed; in general, the practice was to allow normal sloughing with antibiotic boluses deposited in the uterus every 48 to 72 hours. Each cow was clinically examined at approximately 30 days post calving to determine uterine involution and pathology. If there was evidence of metritis or endometritis, the cow was treated and re-examined and, if indicated, retreated at two- to three-week intervals. Using this protocol, it was found that uterine involution, post-calving estrous cycling and conception rates were normal as compared to the non-treated controls.

Summary

The decision to induce parturition in the dairy cow must be a carefully considered one by the practitioner. The procedure and possible detrimental effects must be carefully relayed to the owner and the final decision rested in his hands. From all work reviewed, it does appear that it is a successful procedure with limited detrimental results. However, these should be carefully pointed out to the owner and a complete understanding made before the procedure is initiated.

Management of the Dairy Cow Following Abortion

The cause of abortion has an indirect bearing on the aftercare of the dairy cow which aborts. With some causative agents such as leptospira, vibriosis, and many times IBR, there are few signs of impending abortion. The expulsion of the fetus occurs from varying periods of time after the acute infection subsides and there is little stress placed on the animal at the time the actual abortion occurs. In other incidences where abortion is due to causes such as brucellosis, mycotic and fungal agents, the causative agent has a very severe effect on fetal membranes and endometrium and often results in a severe diffuse placentitis, metritis and possible septic conditions which threaten the life of the animal and often produce a prolonged period of infertility.

Abortion after the fourth or fifth month of gestation is commonly accompanied by a retention of placenta for varying periods of time and a diffuse adherence of the placenta is the case more often than not.

If the aborting cow has only slight clinical signs of generalized depression, the case is handled as a routine retained placenta. It is my opinion, along

with many others, that the handling of placental retention should be on a conservative basis. No attempt is made to invade the genital tract prior to 72 hours post abortion. At this time, if placental attachment is cervical and the fetal placenta adhered to only a few of the maternal caruncles and can be loosened quickly and easily, the placenta is removed. If, however, the attachment is diffuse or apical, broad spectrum antibiotic boluses or solutions of choice are deposited in the uterus and the placenta is allowed to slough without assistance. In animals where the uterus contains a large amount of fluid, estrogen may be indicated to help in expulsion of the fluids as well as the placenta after it loosens its attachment. If the placenta is diffusely attached or attached apically, it is allowed to slough without assistance. This may take varying periods of time—anywhere from 96 hours post-calving up to 10 to 14 days. It is my opinion based on clinical observation that the period of infertility is substantially reduced by conservative handling of retained placenta as opposed to manual removal especially where there is apical and diffuse attachment.

When the aborted cow with the retained placenta has clinical signs of septicemia and/or toxemia, an attempt at manual removal of the placenta is contraindicated. Parenteral treatment with antibiotic or bacteriostatic drugs along with supportive treatment is indicated. During the acute phase the uterus is not treated. After the acute phase subsides the animal is treated using the conservative approach as we have previously described.

A study of 632 cows with retained placentas, where a conservative systemic treatment with sulfonamides orally and intravenously was used, resulted in a higher subsequent fertility than a more radical treatment with manual removal and various local interuterine treatments (6). In a clinical study at this university similar findings resulted. According to Roberts, "The veterinarian should have the courage of his convictions in handling these cases inasmuch as traumatizing the uterus by attempting to remove the placenta when removal is difficult or impossible results in either immediate septicemia with a marked drop in milk and appetite, elevation of the temperature, loss of weight and possible death or else a prolonged period of convalescence during which time shreds of placenta and exudate are expelled from the uterus, pyometra or chronic metritis develops, or protracted or even permanent infertility results from uterine abscesses, parimetritis, salpingitis, or severe endometritis" (7).

The economic situation of the aborted cow should be discussed with the owner. Most cows that abort do not milk to their potential. In addition, as previously stated, it is not uncommon for long periods of infertility to occur following abortion. In animals with severe metritis, there is a possibility of them being rendered sterile.

It is recommended that all cows which abort and are to be retained in the herd be re-examined in 25 to

30 days to determine if involution of the uterus is proceeding normally and that post partum metritis or pyometra is not present.

Management of the Cow After Dystocia

The management of the cow following dystocia can be involved and extremely varied. It is not possible to cover all possible complications which might arise. In general, aftercare consists of prophylactic measures to prevent first septicemia and/or toxemia and also infections of the genital tract. One of the more important sequelae of long labor is uterine inertia. The atonic uterus is an important predisposing factor to prolapse of the uterus, septic metritis, postpartum metritis and retention of the fetal membranes. Following delivery of the fetus, a genital examination is a standard procedure for detection of the presence of another fetus, evagination of the uterine horn, lacerations and ruptures of the genital tract. In addition, special consideration should be given to the tonus of the uterus. Following evacuation of the fetus, the uterine contraction causes rapid involution and reduction of the uterine lumen diameter. After a prolonged labor it is not uncommon to find weak contractions accompanied by flaccid atonic uterine wall. The administration of an oxytocic agent such as pituitrin, oxytocin or ergot derivatives is indicated. Wide spectra antibiotic intrauterine therapy is also indicated along with parenteral antibiotics or bacteriostatic agents. The general condition of the animal may indicate supportive fluid therapy. Calcium solutions may aid in promoting uterine contractions. The owner should be instructed to carefully observe the cow and promptly call if the animal does not make progressive, rapid recovery. Genital discharge is usually most voluminous the first 48 hours and should be diminishing in amount until very little is apparent by the eighth or ninth day. If there is a genital discharge which does not decline in amount after the fourth or fifth day even though the animal appears to be in good general condition, the owner should be instructed to call for re-examination and probable intrauterine treatment. All dystocia patients should receive a postpartum examination 25 to 30 days post delivery.

Aftercare Following Fetotomy

Fetotomy is not a very popular delivery technique in the United States, but it is my opinion that it is indicated in many instances and can be especially useful in dairy practice. Because of the importance of milk production, the less stress required in delivery the better the chances are that milk production will not be suppressed. If fetal death has occurred, or is imminent, and the indications are of fetal oversize or postural abnormalities which indicate that excessive traction or manipulation will be required, a fetotomy should be initiated immediately. Too often excessive force or manipulation is attempted and the decision to perform a fetotomy is a last resort measure. In addition, when economic conditions are such that the

value of the calf is low, sacrifice of the live fetus by fetotomy may be considered.

The primary reasons fetotomy procedures are not popular is (1) lack of properly designed instruments, and (2) lack of adequate training and experience and familiarity with techniques.

The advantages of correctly performed fetotomies are (1) rapid reduction in size of the fetus facilitating safe delivery per vagina; (2) rapid recovery in comparison with Cesarean section or extreme forced extraction; (3) fertility less likely to be impaired as compared to Cesarean section; and (4) monetary returns should be equal to that received from a Cesarean section.

While on sabbatical leave in the Netherlands, I observed, learned and practiced the techniques of fetotomy as utilized at the veterinary school at the University of Utrecht. These techniques are illustrated and described in the manual, "The Technique of Fetotomy in Large Animals." Professor Dr. C. H. W. deBois is given the credit for developing a truly practical fetotomy technique, my part was one of publishing the procedure in English.

Special consideration should be given to dystocia which requires extensive fetotomy procedure. Immediately after completing delivery, a hot antiseptic solution is used to lavage the uterus. A 1-2 inch diameter soft rubber hose is introduced into the lumen of the uterus and a large funnel inserted into the opposite end. Approximately two to three liters of a hot solution is introduced and syphoned off. This is repeated until a clear solution is returned. This procedure not only cleanses the debris from the uterus but stimulates strong uterine contraction and involution of the uterus. This was common procedure in the Netherlands accompanied by consistent excellent results. Uterine lavage is contraindicated during the first 72 to 96 hours postpartum or after dystocia, if not initiated immediately after delivery. Additional treatment as previously discussed is indicated following uterine lavage.

Injuries of the Perineal Area, Vulva and Vagina Following Dystocia

Rupture, laceration and contusions of the vagina, vulva and perineal area are not uncommon following a severe dystocia. Immediate attention is given severe lacerations. After a thorough cleansing, deep lacerations of the vagina and vulvular mucosa should be sutured if at all possible. Local treatment of the area with bacteriostatic or antibiotic ointment or powder is indicated along with parenteral antibiotics. The owner should observe the animal frequently for signs of possible necrotic vulvo-vaginitis. This sequela is usually prevented by prophylactic measures just described. If it does occur, special consideration should be given to the complication of pneumovagina, which severely aggravates the inflamed infected area. Control of the pneumovagina by vulvular retention sutures, Buhner suture or modified Caslick's surgery will control or prevent straining and

speed recovery. Lacerations of the dorsal commissure of the vulva and rupture of the perineal area are more than an immediate concern in that they predispose the animal to long periods of infertility. The question arises if they should be surgically repaired immediately or delayed. If the area is severely contused and inflamed, it is usually best to control infection and wait until the inflammation has subsided until surgical repair is attempted. In general, the cow will respond better to immediate suturing and surgical repair than similar conditions in the mare.

References

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