

Therapeutic Management of Incomplete Cervical Dilatation in a Buffalo

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Abstract

Incomplete cervical dilatation, usually a ruminant cervix ailment more common in pluriparous animals, is the third most common cause of dystocia in buffaloes. Many factors, including cervical induration, primary uterine and cervical inertia, secondary uterine inertia with cervical involution, and in early stages of normal parturition, cause cervical dilatation to fail. At the Teaching Veterinary Clinical Complex, College of Veterinary and Animal Sciences, Parbhani, a seven-year-old buffalo with third parity and about 450 kg of body weight was presented. The buffalo had been straining for the previous three days and had anorexia and foul smelling vaginal discharge. A paravet in the area tried treating the situation without success. The owner said the animal had reached full term during anamnesis. Upon clinical evaluation, the animal was found to be depressed and constantly straining. Upon pervaginal examination, an incompletely dilated cervix was discovered. Fetal reaction was found to be sluggish upon trans-rectal palpation. As a result, the diagnosis of incomplete cervical dilation was made. The animal was treated with dinoprostonegel, cloprostinolsodium, valethamatebromide, calciumborogluconate, dexamethasone and fluid therapy. After dilation of cervix and manual removal of foetus buffalo owner was advised to drench liq. Involon ds 200 ml on day of parturition followed by 100ml on subsequent three days. The case was recovered successfully. Thus, it can be concluded that a case of incomplete cervical dilation in bovines can be managed with said therapy.

Keywords: Buffalo; Cervical dilation; Dinoprostone; Cloprostenol; Valethamate bromide.

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CASE HISTORY AND DIAGNOSIS

Incomplete cervical dilation is a condition occasionally seen in cows and ewes than in other domestic animals (Arthur, 1989) and is the third most common cause of bovine dystocia (Jackson, 2004) and typically a disorder of ruminant cervix. The degree of incompleteness of cervical dilatation varies from virtually complete closure to the situation in which there is just a small rim of cervical tissue present, which is sufficient to reduce the size of birth canal and cause dystocia (Noakes et al., 2019). Incomplete cervical dilatation is more common in pluriparous bovines (Mee et al., 2008). A buffalo of seven years old, with third parity and

approximately 450 kg body weight was presented at Teaching Veterinary Clinical Complex, College of Veterinary and Animal Sciences, Parbhani with the history of straining since last three days, inappetance and foul smelling vaginal discharge. The case was treated by the local quack but there was no response. During anamnesis, owner stated that animal has completed full term. On clinical examination, animal was found depressed with continuous straining, by pervaginam examination it was found that cervix was incompletely dilated (approximately two finger dilation). On trans-rectal palpation, sluggish fetal reflex was noted. On the basis of history, clinical examination, pervaginam examination and per rectal examination, the case was diagnosed as incomplete dilation of the cervix.

TREATMENT

The animal was treated with inj. Pregma 2ml (Cloprostinol sodium 500 microgram), inj. Epidosin (Valethamate bromide 100 mg), inj. Calborol (Calcium borogluconate @1ml/kg), inj. Dexona-vet 5ml (Dexamethasone 20mg) through intramuscular route and gel. Cerviprime -3.0g (Dinoprostone 0.5 mg) applied endocervically. In order to correct electrolyte imbalance normal saline (2 lit) and RL (2 lit) was given by IV route. After 6 hrs of treatment the cervix was adequately dilated and the live foetus was removed by traction due to minor postural defect. The placenta was also expelled 5-6 hrs later. To alleviate pain and prevent secondary bacterial infection a course of antibiotic (inj. Intacef 4.5g) along with antiinflammatory (inj. Melonex 20 ml (meloxicm @ 0.5 /kg.bd wt) and antihistamine (inj. Anistamin 10 ml)(chlorpheniramine maleate @ 0.2 mg/kg) was given through intramuscular route for five days. Owner was also advised to drench liquid Involon ds 200 ml on first day followed by 100ml on subsequent three days. The case was recovered uneventfully within five days.

RESULTS AND DISCUSSION

The mechanism of cervical dilation in bovines is poorly understood. However, there are various factors that contribute to the condition viz altered hormonal milieu, which in turn, is the consequence of environmental disturbances like continuous presence of an observer, confinement or overcrowding calving accommodations. As a consequence, there is reduced uterine motility, cervical dilation and abdominal contractions with resultant prolonged calving and dystocia (Mee *et al.*, 2008). In addition, hypocalcemia (clinical or

subclinical) probably involved in the pathogenesis, by impairing myometrial contractions of uterus (subsequently causing uterine inertia). Moreover, improper cervical dilation may be the result of failure of fetus to engage in the cervix (breech presentation or simultaneous presentation of the twins), uterine torsion (Kumar *et al.*, 2014) and scar formation in the cervix due to previous obstetric damage. It should be remembered that premature intervention in calving (i.e. incomplete first stage of labor) can lead to incorrect presumption of failure of cervical dilation and iatrogenic damage to cervix. On the other end, it should always be kept in the mind that duration over which cervix is dilated is relatively short, if the calf is not delivered during that time window, the cervix will start to close again, trapping the fetus within the uterus. The cervical ripening is multifactorial process that involves synchrony in hormonal events, inflammatory process and enzymatic breakdown of collagen. (Balamurugan *et al.*, 2018). Inadequate pre-calving estrogen concentration, and raised cortisol to progesterone ratio can result in impaired relaxation of cervix and pelvic ligaments. To manage incomplete cervical dilation various approaches have been reported.

The Dinoprostone gel in combination with intravenous injection Valethamate bromide was found effective for dilatation of cervix in clinical case was observed within 7 hrs whereas int required an average 21 hrs for cervical dilatation in the parturient buffaloes. Dinoprostone is a synthetic analogue of Prostaglandin E2 (PGE2). The major clinical application of PGE2 relates to its effect on uterine smooth muscle. Dinoprostone is equivalent to prostaglandin E2. It stimulates labour and delivery by stimulating uterus and thus assists parturition. Dinoprostone administered intravaginally stimulates myometrium of gravid uterus to contract in a manner that is similar to contractions seen in uterus during labour, resulting in evacuation of fetus from the uterus. It is believed that Dinoprostone exerts its uterine effects via direct myometrial stimulation, but the exact mechanism of action is unknown. Other suggested mechanisms include regulation of cellular membrane calcium transport and of intracellular concentrations of cyclic 3'.5'-Adenosinemonophosphate. Dinoprostone also appears to produce local cervical effects including softening, effacement and dilation. The exact mechanism of action for this effect is also unknown, but it has been suggested that this effect may be associated with collagen degradation caused by secretion of enzyme collagenase as a partial response to locally administered Dinoprostone.

Valethamate bromide is a quaternary ammonium compound which blocks muscarinic receptors of smooth muscles thus causing relaxation and dilatation of cervix. The finding of this study is close agreement with Patil and Thorat (2013) who reported alone Inj. Valethamate bromide was effective 28 hrs in buffaloes for cervical dilatation. Valethamate bromide proved to be an effective drug for treatment of cervical dilatation where fetuses were alive. However, this drug is found to be ineffective in cervical dilators with dead foetus (Phogat *et al.*, 1994).

The degree of incompleteness of dilatation varies from virtually complete closure to situation where there is just a small frill of cervical tissue present, which is sufficient to reduce size of the birth canal, thereby causing obstruction. Incomplete dilatation of cervix frequently accompanies uterine torsion (Noakes *et al.*, 2009). Use of intravaginal dinoprostone gel is regular practice of medical practitioners for cervical dilatation. There is no literature found in Veterinary practice for use of dinoprostone gel in cases of cervical dilatation. More *et al.* (2003) used Dexamethasone and Valethamide bromide combination therapy and found successful cervical dilation in cows and buffaloes within 12 hours.

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