



Cervicotomy for the Management of Dystocia due to Prepartum Cervico-Vaginal Prolapse and Incomplete Cervical Dilatation (ICD) in cow: A Case Report

Newton Biswas, Brijesh Kumar*, Mayank Singh Baghel, Chinmay Ruprao Warghat, MH Khan

Division of Animal Reproduction, ICAR-Indian Veterinary Research Institute (IVRI), Izatnagar-243122, (Uttar Pradesh), India

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ABSTRACT

The Referral Veterinary Polyclinic, ICAR-IVRI, received a cow with a primary complaint of third-degree cervico-vaginal prolapse. All the vital parameters were within the normal range. A per-rectal examination confirmed that the fetus was viable. Furthermore, a per-vaginal examination revealed a dry vaginal passage with an incompletely dilated (2-finger) cervical rim. We administered dilation therapy to the animal, along with periodic cervical massage, and monitored it for 36 h. The cervix showed no significant dilation (one feast), and the first cervical ring was relatively hard, preventing complete dilation. Consequently, we opted for a cervicotomy and delivered a live female calf.

Introduction

Prepartum prolapse in cows can cause ischemia of the cervical area, leading to incomplete cervical dilatation (ICD), which can hinder normal foetal expulsion, even when the foetus presents, positions, and postures normally (Raja et al., 2019). Cervicotomy is less intrusive than caesarean sections in certain situations, such as limited equipment and the unfitness of animals for surgery, and can effectively address the issue (Sathiamoorthy et al., 2011). The present report describes a case of ICD after prepartum prolapse in a crossbred cow and its correction by cervicotomy. Fat mobilisation and uterine inertia can make it hard for the cervix to open. This can happen because of metabolic processes that make magnesium and calcium less available. Hypocalcemia, hypomagnesemia, ageing, sickness,

inactivity, premature deliveries, and perhaps hyposelenemia are some of the factors that can lead to primary uterine inertia (Mee, 2008). Hormone imbalances or inadequate release of estrogen, relaxin, and prostaglandin, which regulate uterine contraction, could be another reason (Molefe and Mwanza, 2020). According to Wehrend et al. (2003), 17% of dystocia cases in cows and 38% in beef cattle had cervical origins.

Case history and observation

The Referral Veterinary Polyclinic, ICAR-IVRI, Izatnagar, Bareilly received a seven-year-old crossbred cow in her fourth parity, who had been experiencing complete gestation, reduced feed and water intake, unproductive straining, and third-degree cervico-vaginal prolapse for the past

*Corresponding author.

E-mail address: drbrijeshvet02@gmail.com (Brijesh Kumar)

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two days. A general medical examination showed that the sacro-ischiatic ligaments were relaxed, the udder was getting bigger, and the teats were getting fuller, which was more proof that the pregnancy was over. We recorded all the vital parameters, including the temperature (102.5 °F), respiration rate (27 per minute), and pulse rate (53 per minute). Physical examination revealed oedematous vulval lips. Upon vaginal examination, it was found that the cervix had dilated by two fingers, accompanied by hardened cervical rings. The per-rectal examination revealed that the fetus was viable and in anterior presentation. The presence of interdigital, bulbar, and swallowing reflexes determined the foetus's viability.

Treatment and discussion

Initially, we administered Cloprostinol sodium 500 microgram (Pregova™ Injection, Virbac India), 80 mg of Valethamate bromide (Epidosin®, TTK Healthcare Ltd.), 2 mg of Estradiol benzoate (Pregheat® Injection), and 10 ml of Dexona®-Vet Injection (Dexamethasone 40 mg) via an intramuscular route to ensure proper dilation of the cervix. However, the animal did not respond to the induction treatment, so we repeated the same treatment the next day and applied a vigorous cervical massage (Fig. 1) using carboxymethylcellulose (CMC) gel (1% carboxymethylcellulose sodium, HiMedia Laboratories Pvt. Ltd., Thane). The animal We also administered fluid therapy to the animal intravenously, using 2 litres of normal saline and 2 litres of Ringer's lactate, to correct the electrolyte imbalance. The condition of the animal and the viability of the foetus, it was decided that a cervicotomy would be done to assist in the faster delivery of the foetus.

To perform a cervicotomy, we applied a mild traction force to position the cervix at 10 o'clock and 2' o'clock, respectively (Figs. 2 A and B), focusing solely on the circular muscles. Surgical Blade No. 24 performed the cervicotomy. Consequently, the cervical dilatation was sufficient to deliver the live female calf with slight traction (Fig. 3). We treated the dam with intravenous injections of dextrose-normal saline (2 litres), ceftiofur sodium (1 g), meloxicam (15 ml), calcium borogluconate (250 ml), and oxytocin (20 I.U.). We continued to administer antibiotics, antihistamines, and anti-inflammatory drugs for the next 5 days.

Being more muscular and fibrous in nature, the bovine cervix closes strongly during pregnancy. An inadequately relaxed and dilated cervix can result in severe dystocia. Incomplete cervical dilatation (ICD) may occur

due to inadequate preparation with oestrogen and relaxin (Sloss and Dufty, 1980). Ischemia in the cervical region can also lead to delayed or incomplete cervical dilatation, both during and after the correction of a uterine torsion. However, in this particular case, the ICD was caused by vaginal prolapse, likely as a result of continuous recurrent prolapse, which could potentially lead to the hardening of the external os rings and the surrounding tissue. If the cervix is thick and exhibits incomplete dilation throughout its length, a cervicotomy becomes contraindicated.

Many times in heifers, cervicotomy is associated with episiotomy due to improper relaxation or development of the vulva (Kumar et al., 2014). Researchers earlier reported the use of cervicotomy as a management technique in a fresh case of imperfect cervical dilatation in cows (Sathiamoorthy et al., 2011). In cows, the cervix is comparatively more cartilaginous than other farm animal species, and if it is not adequately dilated during parturition, severe dystocia can follow (Sloss et al., 1980; Arunpandian et al., 2022). However, in animals, cervical ripening is poorly understood (Gahalot et al., 2017). In the present case, incomplete cervical dilatation at the time of parturition may be due to recurrent cervicovaginal prolapse (CVP), thereby causing the external cervical ring (1st) not to respond properly. Malnutrition and a Ca:P imbalance may have caused the cervicovaginal prolapse (CVP) in the cachectic animal, leading to a cervicotomy and the successful delivery of the live foetus. Therefore, pregnant animals with a history of recurrent cervico-vaginal prolapse require special attention during parturition for successful calving. In brief, cervicotomy is a quite simple and effective method for managing a case of incomplete cervical dilatation and avoiding the risk of a caesarean section (Dutt et al., 2023).



Fig. 1: Identification of a more tensed area of the cervix obstructing the fetus

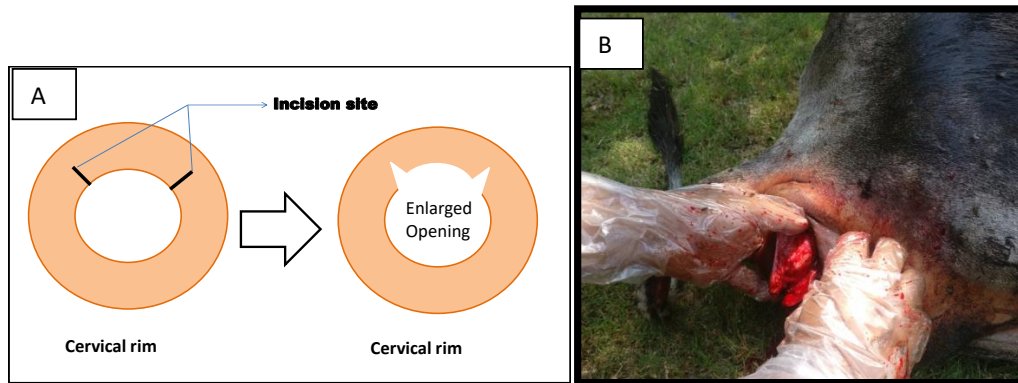


Fig. 2: A). Schematic visualization of incision site for cervicotomy and subsequent enlargement of cervical canal, B). Incision made at 10'O clock and 2' O clock positions respectively



Fig. 3: Dam and calf after 3 days of cervicotomy operation showing signs of recovery.

Conclusions

Finally, the case study shows how important it is to recognise prepartum recurrent cervical vaginal prolapse, which can make it hard for cows to fully open their cervix during labour. In this particular case, we successfully performed a cervicotomy to facilitate the delivery of the live female calf, highlighting the importance of careful management for pregnant animals with a history of cervico-vaginal prolapse to ensure successful calving.

Conflict of interest

No conflict of interest.

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References

- Arunpandian J, Srivastava N, Neethu B, Kujur A. Successful management of dystocia in Holstein Friesian cow due to hydrocephalic fetus- a case report. *Anim Reprod Update* 2022; 3(1): 9-11. DOI: <https://doi.org/10.48165/aru.2023.3.1.3>.
- Dutt R, Pradeep Rahul, Sujata. Dystocia due to incomplete cervical dilatation and its successful management through cervicotomy in a non-descript cow. *Int J Vet Sci Anim Husbandry* 8(2): 107-108. DOI: <https://doi.org/10.22271/veterinary.2023.v8.i2b.502>
- Gahlot SC, Kumaresan A, Kumar S, Yadav S, Saraf KK, Karan P, Verma K. Incomplete cervical dilatation in animals—an update. *Int J Sci Environ Technol*. 2017; 6(2): 1036-1048.
- Kumar BK, Sachan V, Maurya SK, Sonkar V, Pal AS, Saxena A. Dystocia due to stenosis of vulva in heifer and its successful management through episiotomy. *Indian J Anim. Reprod*. 2014; 35(1): 57-58.
- Mee JF. Prevalence and risk factors for dystocia in dairy cattle: a review. *Vet J*. 2008;176(1):93-101. doi: 10.1016/j.tvjl.2007.12.032.

- Molefe K, Mwanza M. Variability of serum reproductive hormones in cows presenting various reproductive conditions in semi-arid areas of the North West Province, South Africa. *Vet World*. 2020;13(3):502-507. doi: 10.14202/vet-world.2020.502-507.
- Raja S, Palanisamy M, Prabaharan V, Rajkumar R, Jayaganthan P. Cervicotomy for the management of dystocia due to prepartum vagino-cervical prolapse in cow. *Indian J Anim Reprod*. 2019; 40(1), 65-66.
- Sathiamoorthy T, Balasubramanian S, Rangasamy S, Raja S, Asokan SA. Cervicotomy approach for dystocia due to imperfect cervical dilatation (ICD) in a cow. *J Indian Vet Association* 2011; 9: 46-46.
- Sloss V, Dufty JH. *Handbook of Bovine Obstetrics*. The Willams and Wilkins Company, Baltimore, USA. 1980;104-105.
- Wehrend A, Bostedt H. Examinations on the incidence of cervical dystocia and disorders of cervical involution in the cow postpartum. *Deut Tierarztl Woch J*. 2003; 110: 483-486.