

## Short Communication

# Recurrent Prepartum Cervico-Vaginal Prolapse in a Crossbred Holstein Friesian Dairy Cow

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### ABSTRACT

A Holstein Friesian (HF) crossbred dairy cow of 5-years-old and 38.5-weeks pregnant was presented to the Veterinary Hospital of College of Veterinary Science, Mekelle University with a history of repeated prolapse since last 10-days. Upon clinical examination, the case was confirmed as prepartum cervico-vaginal prolapse due to excess labor and straining to deliver the fetus. After caesarean section, the cow was restrained on sternal recumbency and the prolapsed mass was made aseptic by washing with a 2% potassium permanganate solution and was repositioned into the pelvic cavity. The cow was kept on fluid therapy (stat), anti-inflammatory and antibiotic for three successive days. A modified Buhner's technique, using infusion set tube as suture was to keep the prolapsed tissue in position to prevent the recurrence and the cow had an uneventful recovery. A successful management of recurrent prepartum cervico-vaginal prolapse using modified Buhner's suture after caesarean section in a crossbred Holstein Friesian dairy cow is discussed.

### Keywords

Modified Buhner's suture; Cervico-vaginal prolapse; Crossbred Holstein Friesian cow; Recurrence.

### INTRODUCTION

Reproductive disorders negatively affect their productive and reproductive performances in dairy cows. The cervico-vaginal prolapse is an emergency reproductive condition in dairy cows that commonly occur in pluriparous cattle with recurrence in subsequent gestations. In cervico-vaginal prolapse, there is eversion of vagina and cervix over caudal attachment, then from the vulvar commissure protrude outside and finally, the inside layer remains out.<sup>1</sup> Besides, rectovaginal prolapse in the cow and recto-cervico-vaginal prolapse in buffalo were also reported by some researchers.<sup>2</sup>

Cervico-vaginal prolapse in the cow typically occurs for the first time in the last trimester of gestation, but may occasionally occur during the postpartum period. During last trimester of pregnancy, higher circulating estrogen predispose to cervico-vaginal prolapse since it enhances relaxin hormone production that induces relaxation of the pelvic ligaments and perineum and the increasing size of the gravid uterus predispose the vagina to pro-

lapse.<sup>3,4</sup> Hereditary factor in some breeds of cattle, intra-abdominal fat accumulation, large and multiple fetuses, previous trauma to the perineal region, rumen distension also contribute to the problem. Dietary factors such as hypocalcemia, food containing estrogenic substance (clover, soybean meals) are also associated with genital prolapse.<sup>5</sup>

Vaginal prolapse has been classified based on the severity and duration of the condition. First-degree vaginal prolapse involves only the vaginal floor and occurs only when the cow is recumbent. With second-degree prolapse, the vagina and often the bladder continuously protrude through the vulva. Third-degree prolapse involves the prolapse of the cervix as well as the vagina and bladder, and straining becomes constant. In fourth-degree prolapse, there is extensive tissue necrosis caused by chronic exposure of the vaginal and cervical mucosa. As the prolapse becomes more severe or chronic, the likelihood of systemic problems such as peritonitis and adhesions increases, and the survival of the fetus is endangered.<sup>5,6</sup>

The diagnosis of cervico-vaginal prolapse is obvious; however, a rectal examination should be performed to determine fetal viability and location of the urinary bladder. Ultrasonography can be used as an adjunct to palpation if the diagnosis of fetal viability or the bladder location is uncertain. The case should be treated as soon as possible; otherwise, the prognosis will be grave.<sup>5,7</sup> This short communication highlights the approach and successful management of pre-partum labor induced cervico-vaginal prolapse in a crossbred Holstein-Friesian dairy cow.

## CASE PRESENTATION, HISTORY AND CLINICAL OBSERVATIONS

A 5-years-old multiparous Holstein Friesian (HF) crossbred dairy cow and 38.5-weeks pregnant with a history of repeated Cervico-vaginal prolapse since the last 10-days was presented to Veterinary Hospital, College of Veterinary Science, Mekelle University, Ethiopia. The first case was diagnosed as a first-degree vaginal prolapse that involves only the vaginal floor and managed properly without any complication. However, after 10-days, the owner reported the recurrence of the same case. The owner also communicates to us the date was the expected date for parturition.

Upon arrival and physical examination, the cow was found on sternal recumbency with slight depression due to long straining and confirmed prepartum cervico-vaginal prolapse. On recurrence, vaginal tissue broke through the sutures tearing (local synthetic thread) the vulvar lips and was hanging outside the vulva. Vulvar lips tearing, vaginitis and contamination of prolapse mass were observed (Figure 1A). Besides, the prolapse was of third-degree that involves prolapse of the cervix, the vagina and bladder with constant straining (Figure 1B). Upon rectal examination, the fetus was alive with the head on the pelvic cavity. The physiological parameters (rectal temperature, respiration rate and heart rate) were slightly elevated. Moreover, the prolapsed mass was found swollen, edematous with mild laceration in the exposed part. The cow could not pass urine due to prepartum prolapse and at frequent intervals exhibited intermittent straining.

## SURGICAL MANAGEMENT, POST-OPERATIVE FOLLOW-UP AND RESULT

The previous case was managed properly after proper restraining on sternal recumbency and administering caudal epidural anesthesia (2% lidocaine hydrochloride). The vaginal tissue made aseptic by washing with a 2% potassium permanganate solution and was repositioned inside the pelvic cavity. After repositioning, a Buhner's technique, using sterile cotton thread as a suture material, was applied parallel to vulva apart from the vagina beneath the skin to keep it in position. The cow was kept on fluid therapy (5% Dextrose solution, 1000 ml stat, I.V.), antibiotic (Ceftriaxone, 5 gm/kg, I.V.), and Meloxicam (0.5 mg/kg, IM) for 3 successive days. During the follow-up of the cow, no complications on the vulvar area was noticed.

On recurrence, a similar approach pre- and post-operative technique was followed to manage the case. However, it was

unsuccessful due to some complications listed below. Thus, the repositioning of the prolapsed mass was found difficult and unsafe and the caesarean section was performed to minimize the risk and to increase prognosis. After caesarean operation, the cervico-vaginal prolapse was successfully repositioned into the pelvic cavity in a similar manner with the first case. However, this time a modified Buhner's technique using an infusion set tube was used as suture to retain the prolapsed mass (Figure 1C). After 15-day post-operation, the wound was healed completely and after three months of follow-up, the cow was under good health status. The owner was advised to cull the cow.

**Figure 1.** (A) Cervico-vaginal Prolapse on Recurrence in Crossbred HF Cow (B) Post-Cleaning View of Prolapsed Mass (C) Modified Buhner's Technique Using Infusion Set Tube as Suture in a Crossbred HF Cow



## COMPLICATIONS

Some of the complications that occur during the procedure were first, there was the excessive enlargement of the prolapsed mass due to the time lapse between eversion and its reporting. Secondly, increased size and weight of the prolapsed tissue and vaginal tear due to the involvement of cervix, vagina and fully distended urinary bladder with some fetal fluids. Thirdly, there was excess labor and straining to deliver the fetus since the cow in normal parturition cascade.

## DISCUSSION AND CONCLUSION

Cervico-vaginal prolapse is a major reproductive disorder and an emergency condition in cattle that should be managed earlier excessive edema, mucosal trauma, contamination, tear and fatal hemorrhage.<sup>5,8</sup> In this report, cervico-vaginal prolapse has resulted from the excess labor force and straining of the cow for extraction of the fetus and the case was managed as early as possible. Forced extraction of the calf and dystocia have been implicated as causes of prolapse in dairy and beef cattle by Hopper<sup>9</sup> and Kumar.<sup>10</sup> In the present report, the cervico-vaginal prolapse was observed during the last trimester of pregnancy. This finding is in accordance with an earlier report where the maximum number of such cases was noticed in the last 2-months of gestation.<sup>7</sup> Besides, prepartum cervicovaginal prolapse was frequently observed. This finding is in accordance with earlier reports of different authors that states vaginal prolapse occurred most frequently a few hours following parturition.<sup>5,7</sup>

In this study, the prolapse was progress from first-degree vaginal prolapse turned to third-degree. According to an earlier

study, first-degree vaginal prolapse is likely to progress to second/third-degree, without temporary retaining sutures or a permanent fixation technique.<sup>10</sup> This was in contrast with the report of Bhattacharyya et al<sup>7</sup> where no temporary suture was applied. In the present study, the modified Buhner's technique, using infusion set tube as suture material, was found to be very satisfactory in preventing recurrence of the prolapse particularly in developing countries where farmers cannot afford repeated costly treatment of their livestock. This finding in agreement with the finding of Bhattacharyya et al<sup>7</sup> and disagrees with the previous reports of Akhil et al,<sup>2</sup> Pravesh et al,<sup>3</sup> Kumar,<sup>10</sup> that used other suture material Vetafil, Umbilical tape, Finlayson thread, nylon.

Modified technique has some advantages over the standard Buhner's technique including a) sufficient space on ventral vulvar commissure that ease urination, ii) less traumatic since it doesn't need suture above and below the vulva, iii) when required, the suture can be loosened and reapplied by the owner himself, iv) quick application with no additional instruments requirement and v) no scar formation in the vulvar area. This was in agreement with Bhattacharyya et al.<sup>7</sup>

Accordingly, recurrent prepartum cervico-vaginal prolapse due to parturition could be managed by a combination of caesarean section to deliver the fetus and modified Buhner's using infusion set tube as suture material and recommended as an alternative technique. This surgical protocol may be used as a preliminary strategy for managing third-degree vaginal prolapse under field conditions.

#### CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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