



A Rare Case of Fetal Maceration in Aborting Cattle due to Progesterone Administration: A Boon Turned to Bane

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Abstract

The present case was reported in seven years old Holstein Friesian which was presented with a history of turbid vaginal discharge since last 10-15 days and administration of progesterone one month back to prevent ensued abortion. Trans-rectal ultrasound scanning revealed the presence of bones with hyper-echoic density (bones) in the uterus. An attempt to dilate the cervix by administration of cloprostenol and dexamethasone was futile. Later, a macerated foetus was removed through the left lateral oblique (flank) approach of Laparo-hysterotomy.

Keywords: Cattle, Fetal Maceration, Laparo-Hysterotomy, Progesterone.

Introduction

Progesterone, a key hormone secreted from corpus luteum, is crucial for establishment and maintenance of pregnancy and also plays a significant role in endometrial secretions necessary for growth of the embryo. Administration of progesterone in order to prevent threatened abortions not always act as a boon but sometimes it may subject such animals to reproductive maladies like fetal maceration and pyometra. Death of fetus after ossification within the uterus and microbial digestion or putrefaction of the fetus in the fluid of uterus till only the mass of bones remains is called as maceration (Kumar, 2009). This condition has been described in sheep (Ate *et al.*, 2011) and mare (Burns and Card, 2000) but most commonly in cattle and buffaloes (Azizunnesa *et al.*, 2010; Purohit and Gaur, 2011). Incomplete abortion after the third month of gestation is the main reason for a retained fetal bony mass in the uterus of cows and buffaloes (Sood *et al.*, 2009; Dutt *et al.*, 2018). Progesterone supplementation inhibits the intake of intracellular calcium ion essential for myometrial contractions (Klauke and Hoffmann, 1991) and results in incomplete abortion due to partial dilatation of cervix and uterus. Therefore, progesterone administration should not be done once the process of abortion has been initiated (Kumar *et al.*, 2021). Putrefaction and autolysis of soft tissue of the fetus present in the uterus causes expulsion of foul, fetid, and reddish grey vulvar discharge (Noakes *et al.*, 2001). In early cases of fetal maceration, the fetus may be removed per-vaginum by careful and gradual traction if the cervix is sufficiently dilated and adequate lubrication is used (Shalini *et al.*, 2018). However, the cases in which the macerated fetus cannot be removed due to a contracted cervix can be treated with estradiol or PGF_{2α} to cause dilatation of the cervix. Lapro-hysterectomy is potentially dangerous and must be considered as a last alternative in cows to relieve the macerated fetus if the hormonal treatment is not effective (Honparkhe *et al.*, 2008; Kumar *et al.*, 2013).

Case History

A Holstein Friesian cow, aged seven years, was brought to the Veterinary clinical complex of Khalsa College of Veterinary and Animal Sciences, Amritsar with the history of turbid vaginal discharge since last 10-15 days. According to the owner, progesterone was administered by a local private practitioner one month back to prevent an ensuing abortion. On recording the general body parameters, rectal temperature, heart, respiration, and pulse rates were found within normal range. Per-rectal examination revealed the presence of fetal skeletal along with disintegrated bones in the uterine cavity, the placentomes were not palpable, and fremitus was lacking. A per-vaginal examination found the cervix partially dilated (2 fingers). For confirmatory diagnosis of maceration, the cow was subjected to transrectal ultrasound scanning, which revealed bright hyperechoic disintegrated bony parts of the fetus and no evidence of fetal fluids (Fig. 1). Thus, the clinical findings of the case were confirmed as fetal maceration.

Treatment

An attempt was made to dilate the cervix and vacate the uterus by the administration of Cloprostenol 500µg (Inj Metrum®, Macwell, 2 ml IM), Oestradiol benzoate 2mg (Inj Pregheat®, Virbac 2ml IM), Valethamate bromide 100 mg (Epidosin®, TTK Pharma 10ml IM), Dexamethasone 40 mg (Dexona®, Sarabhai Zydus Animal Health Ltd. 10 ml IM). No change was found in the cervical dilatation even after 2 days of treatment. Therefore, it was decided to perform laparo-hysterotomy in the standing position by the left flank approach. To improve the general condition and to combat toxemia the animal was administered intravenous fluids (2 liters of normal saline) and broad-spectrum antibiotic (Amoxicillin-sulbactam, Inj. Amoxirum forte®, Virbac India Ltd, 4.5g IM) before the surgery. Subsequently, left flank laparo-hysterotomy was performed under paravertebral block and linear subcutaneous infiltration of 2% Lignocaine hydrochloride along the incision line with minimum possible contamination of the surrounding tissues. The pregnant horn was exteriorized outside the incision line and macerated fetus was removed along with other reabsorbed septic contents from the uterus (Fig. 2). After flushing the uterus with normal saline and diluted povidone iodine solution it was subsequently sutured with Cushing's followed by Lambert's sutures using Chromic catgut no.3 followed by closure of the abdominal incision by lock stitch suture pattern. Post-operative care included infusion of fluids (normal saline, 3 liters IV), antihistaminic drug (Pheniramine maleate, Avilin Vet®, Intervet India 10 ml IM), antibiotic (Amoxicillin-sulbactam, Inj. Amoxirum forte®, Virbac India Ltd, 4.5g IM) and non-steroidal anti-inflammatory drug (Flunixin meglumine, Inj. Megludyne®, Virbac India Ltd, 20ml IM) for 6 days. The cow recovered uneventfully. The skin sutures were removed after ten days' post-operation.



Fig. 1 Hyper-echoic density of bones inside uterus



Fig. 2 Macerated fetus of cow

Results and Discussion

Prolonged duration of fetal maceration often leads to severe degenerative and sclerotic changes in endometrium and reduces the future fertility of the animal (Roberts, 1971). Longer the condition exists greater the damage of the endometrium and poorer the prognosis in fetal maceration (Bhattacharyya *et al.*, 2015). However, in the present case, animal was completely recovered with no further complication probably because of earlier diagnosis of the condition and immediate removal of the macerated fetus. Successful surgical management of fetal maceration in cow was also reported by various researchers (Kumar *et al.*, 2013; Bhattacharyya *et al.*, 2015; Prabaharan *et al.*, 2020). Veterinarians/para-veterinarians very often use progesterone to prevent ensued abortion in cows and buffaloes. It is recommended that the use of progesterone should be avoided in aborting animals once its process has set in (Kumar *et al.*, 2021).

Contribution by Authors

All the authors contributed equally to writing the manuscript. The final manuscript was read by all authors and consented to publication.

Conflict of Interests

There is no conflict of interest.

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