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## MANAGEMENT OF FETAL MUMMIFICATION IN A HOLSTEIN FRIESIAN COW- A CASE REPORT

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### ABSTRACT:

A rare case of fetal mummification delivered per vaginally in a Holstein Friesian cow after inducing dilation of the birth canal is reported.

**KEYWORDS:** Cattle, Fetus, Mummification, PGF<sub>2α</sub>.

### INTRODUCTION:

Fetal Mummification is a reproductive disorder, which is responsible for farm economic loss by extending the inter-calving period as well as the fetal loss (Azizunnesa *et al.*, 2010). It occurs in all domestic species including cattle with an incidence rate of 0.13-1.8% (Barth, 1986). It occurs in both indigenous as well as exotic breeds of cattle (Jana and Ghosh, 2014). The cases of fetal mummification were reported by Yilmaz *et al.*, 2011; Kumaresan *et al.*, 2013; Manokaran *et al.*, 2014; Bhuyan *et al.*, 2016; Kumar *et al.*, 2017; Kumar and Saxena, 2018; Hendrawan *et al.*, 2019 in cattle. In cattle, fetal mummification occurs after the formation of the placenta and fetal ossification (70 d gestation) preferably between the 3<sup>rd</sup> to 8<sup>th</sup> months of gestation, without concomitant luteolysis and cervical opening (Roberts, 1986, Rejean *et al.*, 2009; Lefebvre, 2015). In fetal

mummification pregnancy remains undisturbed as the fetal signal for induction of parturition remains absent (Kumar *et al.*, 2017). This paper aims to report a case of the mummified fetus delivered per vaginally after therapeutic medicinal management in a Holstein Friesian cow.

### **CASE HISTORY AND OBSERVATIONS:**

A six year old Holstein Friesian cow in its third parity was presented to the Department of Veterinary Gynaecology and Obstetrics, Teaching Veterinary and Clinical Complex, College of Veterinary and Animal Science, Bikaner, with a complaint of prolonging gestation. Per-rectal palpation revealed a fetus as a compact, firm, and immobile mass without placental fluid or placentomes. During per-vaginal examination cervix was found as closed. The overall general appearance of animal appeared normal. The case was diagnosed as fetal mummification.

### **TREATMENT AND DISCUSSION:**

It was decided to induce parturition by providing dilation therapy and therefore animal was given Synthetic prostaglandin PGF<sub>2</sub> $\alpha$  i.e. cloprostenol sodium (Repregna®- Mankind, India) 500 ug IM (intramuscular) and on second day estradiol benzoate (Pregheat®- Virbac, India) 2 mg IM intramuscularly and kept under observation. A vaginal examination was carried at every 12 hours interval to observe the status of cervical dilation. After 52 hours of post-treatment, cervical dilation was found satisfactory, however, the uterus as well as the birth canal was in dry condition. It was further decided to provide lubrication with liquid paraffin followed by mild traction on the approaching parts of fetus. This resulted in the delivery of the entire fetal mass covered by thick chocolate coloured membrane (Figure 1). The animal was discharged after an hour with routine symptomatic treatment.

Fetal mummification occurs sporadically in all domestic animals. Haematic mummification is found in cattle (Noakes *et al.*, 2009). The etiology of mummification is both infectious and noninfectious and these causes may overlap or be interrelated. Infectious agents such as bovine viral diarrhea, leptospirosis and fungi, and may also by mechanical causes such as umbilical cord torsion, uterine torsion, placentation disorder, genetic abnormalities, and non-infectious causes as well as trauma, hyperthermia, and stress are responsible for fetal mummification (Krishan, 2015). As corpus luteum does not undergo luteolysis therefore cattle shows prolong gestation period which was also evident in this case report.

The hypothesis of the intrauterine mummification process is the dehydration of the fetus and fetal membranes, which neutralizes the autolysis of tissues in the absence of oxygen and bacteria (Daneshmand *et al.*, 2003). The treatment of choice in cases of fetal mummification is luteolysis by injection of PGF<sub>2</sub> $\alpha$ , however, a certain percentage of animals do not expel the dead fetus.

Various authors reported a spontaneous parturition rate of 60% for cows carrying mummified fetuses with PGF<sub>2</sub> $\alpha$  alone (Lefebvre, 2015). However estrogens provoke regression of the CL and inducing myometrial contraction, relaxation of cervix and expulsion of the mummified fetus in the cow (Roberts, 1986). Few other workers reported that combination therapy of estradiol with PGF<sub>2</sub> $\alpha$  gives a better result. We opted a combination treatment involving prostaglandin and estradiol. The treatment resulted in the dilation of the cervix and following lubrication of birth canal delivery of mummified fetus was affected. Despite having received PGF<sub>2</sub> $\alpha$  treatment, a certain percentage of animals do not expel the dead fetus, in such cases manual extraction by caesarean section is an alternative method.

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Figure 1: A mummified bovine fetus along with the attached dry fetal membrane