

CASE REPORT

Management of Fetal Mummification in a Crossbred Heifer with Dinoprost Tromethamine and Estradiol Benzoate

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Fetal mummification is an accident during the gestation period, and its incidence is 0.13-1.8% in cows (Kumar and Saxena, 2018), which is characterized by resorption of fetal fluids and fetus surrounded by chocolate-colored material (Kumar *et al.*, 2017). Fetal mummification generally occurs during 3-8 months of gestation (Krishan, 2015; Kumar and Saxena, 2018) after fetal skeletal development, without cervix dilatation and contamination with persistent corpus luteum (Kumar and Saxena, 2018). The choice of treatment of fetal mummification is the lysis of corpus luteum by a natural or synthetic analogue of PGF₂α; however, a certain percentage of animals do not expel the dead fetus (Lefebvre *et al.*, 2009).

CASE HISTORY AND CLINICAL OBSERVATIONS

A four-year-old and 298 kg crossbred heifer from Livestock Farm Complex was presented to Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli. As per the breeding record, the animal was inseminated before 295 days, and pregnancy was confirmed 40 days post-insemination. At 7 months of gestation, the udder and abdomen had increased in size and then eventually shrunk without exhibiting the signs of parturition. The animal was found active on physical and clinical examination, and all vital parameters were in the normal range. Haemato-biochemical values revealed a typical blood picture. Per rectal examination revealed a complex, immobile fetal mass near the pelvic brim devoid of fetal fluid and fetal bump. On ultrasonographical examination, intact hyperechoic fetal skeleton approximate 4-5 months with hypoechoic fetal membranes and absence of anechoic fetal fluid with 1.68 x 1.6 cm sized corpus luteum and 0.38 cm thickened uterine wall. Based on per rectal and ultrasonographical examination case was diagnosed as mummification of the fetus.

TREATMENT AND DISCUSSION

The animal was treated with intramuscular injection of Cloprostenol sodium 500 µg and injection of Enrofloxacin @ 7.5 mg/kg b.wt. (for 7 days) to avoid secondary bacterial infection. After 72 hrs the animal did not respond, and the cervix was not relaxed. Ultrasonographic examination revealed intact corpus luteum. Second dose of Cloprostenol

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sodium 500 µg and Dexamethasone 40 mg was administered intramuscularly. Unfortunately animal did not respond after 72 hrs of the second dose of Cloprostenol sodium. Switching to another line of treatment animal was treated with an injection of Dinoprost tromethamine 25 mg intravenously and an injection of Estradiol Benzoate 2 mg intramuscularly. After 24 hours, thick white color discharge was observed from the vulva, and the size of the corpus luteum was reduced to 12.3 mm x 16.9 mm after 48 hrs of dinoprost and estradiol therapy relaxed the cervix and chocolate color discharge. A hard, immobile mass was gently removed from the birth canal. The whole fetal surface was sticky chocolate color, and the placenta was dried and attached to the fetal body. Post-operatively animal was treated with injections of Oxytocin 25 IU intramuscularly and further to that, with the injections of Enrofloxacin @ 7.5 mg/kg b.wt., Meloxicam @ 0.5 mg/kg b.wt., and Chlorpheniramine maleate @ 0.4 mg/kg b.wt. were administered intramuscularly, and liquid Involon strong (Ayurvedic Ecboic) @ 100 ml orally for three consecutive days. It resulted in an uneventful recovery in the animal.

The present case was diagnosed after 295 days of gestation. As per Noakes *et al.* (2009), late embryonic death, which occurs after maternal recognition of pregnancy, causes prolonged luteal phase and the fetus's mummification. As per Kumar *et al.* (2017), in cases of fetal mummification, pregnancy remains undisturbed due to the absence of

signal for induction of parturition from the fetus, which is in agreement with the present case.

Etiology of fetal mummification in bovine includes infectious and non-infectious causes, hormonal imbalance and chromosomal abnormality, twisting of the umbilical cord (Mahajan and Sharma, 2002), uterine torsion in the second trimester of gestation (Moore and Richardson, 1995), defective placentation (Irons, 1999) or genetic disturbance like deficiency of uridine monophosphate synthase (DUMPS). It may cause fetal mortality in cattle due to autosomal recessive genes (Ghanem *et al.*, 2009).

The treatment of choice for fetal mummification is prostaglandin PGF₂α, Kumar and Saxena (2018), Kumar *et al.* (2017), Krishnan (2015), Yilmaz *et al.* (2011), and Azizunnesa *et al.* (2010) advocated the use of Cloprostenol sodium, which results in the expulsion of the fetus within 2 to 4 days post-treatment. Surgical removal of mummified fetuses via colpotomy or laparotomy is advised when medical treatment fails. Lefebvre *et al.* (2009) suggested that in the absence of response to the first dose of PGF₂α and treatment, the 2nd dose of PGF₂α should be administered. Hirsbrunner and Kaufmann (2005) reported that different medical approaches could be adopted in the absence of response to PGF₂α to expel the mummified fetus. In the present study, Dinoprost tromethamine and Estradiol benzoate were administered, which expelled the fetus in 48 hrs. Lefebvre (2015) suggested using dinoprost tromethamine as a PGF₂α analogue, and Montaser and El-Desouky (2016) reported that cloprostenol and dinoprost tromethamine are equally efficient to cause luteolysis in cows. Kumar and Saxena (2018) reported that combination therapy of estradiol and PGF₂α gives a better result. These reports agree with the present study, which inferred that the use of dinoprost tromethamine and estradiol benzoate causes successful management of fetal mummification.

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