CASE REPORT

Prolonged Gestation due to Mummified Fetuses in Conjunction with Normal Fetus in Barbari Doe

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Ind J Vet Sci and Biotech (2022): 10.21887/ijvsbt.18.2.36

The hypothalamus pituitary adrenal axis of the fetus is the prime pathway for initiation of parturition and corticotropin-releasing factor (CRF) plays a central role in the stress response for regulating this axis. Lefebvre (2015) revealed pathological conditions such as mummification, maceration, mucometra, hydrometra and pyometra altered the normal function of the hypothalamic pituitary adrenal axis, prolonging gestation and alternating the normal physiology of the dam. Mummification is a sequel of foetal death without abortion, often after ossification of bones, and the resorption of the fetus is unfeasible (Noakes *et al*., 2009; Chaudhari and Dabas, 2018). The incidence of mummification (4%) is reported to be the highest among other gestational disorders (Vikram *et al.* 2020) and is rarely recorded in does and ewes. Mummification is associated with four major infectious causes Toxoplasmosis, Chlamydophila, Border disease (Pestivirus) and Coxiella Brunetti (Edmondson *et al*., 2012; Lefebvre, 2015). Non-infectious causes of mummification include traumatic injury to the fetus (Broaddus *et al*. 2009; Dubey 2009), umbilical cord compression (Mahajan and Sharma, 2002), uterine torsion, defective placentation (Irons, 1999), genetic anomalies, abnormal hormonal profiles and chromosomal abnormalities. Protein and energy deficiency during advance gestation may lead to fatal mummification with animals clinically appearing weak and anemic (Lefebvre, 2015).

Case History and Clinical Observations

Three-years old pregnant Barbari doe in its 4th parity was presented at the TVCC, GBPUAT, Pantnagar, with the history of non-exhibition of signs of approaching parturition and bilateral tense abdominal bulging since the last two weeks. The gestational length was recorded to be 162 days. The water and feed intake were normal. Physiological parameters, *viz.,* temperature, heart rate and respiration rate were 101.1 °F, 88/min, 32/min, respectively, with pink mucous membrane. Clinico-gynecological findings revealed bilaterally tensed and distended abdomen with the presence of fetus on abdominal palpation and a sealed cervix with an intact mucous plug. The case was diagnosed as prolonged gestation.

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How to cite this article: Mahajan, M., Prasad, S., Singh, V., Tevatia, G.S., & Vermam, P. (2022). Prolonged Gestation due to Mummified Fetuses in Conjunction with Normal Fetus in Barbari Doe. Ind J Vet Sci and Biotech. 18(2), 149-150.

Source of support: Nil

Conflict of interest: None.

Submitted: 18/12/2021 **Accepted:** 28/02/022 **Published:** 10/04/2022

Treatment and Discussion

The animal was subjected to induced parturition using Inj. Estrumate (Cloprostenol @ 125 µg, i/m) and Inj. Dexamethasone (@ 10 mg, i/m). After 14 to 16 hours doe initiated parturition with mild intermittent straining. On further per-vaginal examination, the cervix was completely dilated, and a live fetus was palpated in its anterior presentation with bilateral shoulder flexion and head in the birth canal. Under epidural anaesthesia using Inj. Lignocaine @ 0.4 mL and liquid paraffin for lubrication, postural correction of fetus was done, resulting in delivery of a live fetus by applying mild force traction. Further per-vaginal examination fortuitously revealed two mummified fetuses in the left uterine horn at the digital end. These were recovered per vaginally via manual traction. Post-obstetrically administration of Inj. Floxidin vet (Enrofloxacin @ 5 mg/kg, i/m) for 3 days, along with oral calcium and multivitamins supplementation was done. The dam recovered swiftly without any complications.

The recovered mummified fetuses lacked eyeballs and soft muscle tissue due to absorption of the subcutaneous layer. The foetal consistency and deep red chocolate colour pigmentation from caruncular hemorrhage post-fetal death confirmed the hematic mummification (Fig. 1). The crown-rump length of the mummified fetuses was recorded to be 25.5 cm and 26.7 cm,

Fig.1: Mummified fetuses left (26.7 cm) and right (25.5 cm) born in conjunction with a normal live fetus

respectively, indicating mummification in between 12–14 weeks of age. Anil *et al.* (2017), Alagar *et al.* (2017) and Hemalatha *et al.* (2018) reported a similar case of hematic mummification born co-twin to a live fetus in does and ewes. In multitocus species, diagnosis of mummification usually has a history of prolonged gestation and requires diagnostic imaging such as radiography and ultrasonography supplemented with Doppler USG to determine the viability of the fetuses. Does with twin pregnancy have a greater predisposition to foetal mummification as compared to those with a singleton pregnancy, supporting the finding of the present case with triplet fetuses (Ogbu *et al.* 2011; Bhardwaj and Kumar, 2014). Inadequate nutrition is considered to be the chief cause of foetal mummification in dams with triplets such cases have been reported by Broaddus *et al.* (2009) and Dubey (2009). As sufficient foetal androgen is essential for the lysis of the corpus luteum, mummified fetuses in uterus fail to stimulate hypothalamic pituitary adrenal axis, therefore, the proportional presence of more dead to live fetus ratio is theorised to be the etiology for extended gestation recorded in the current case.

This case report suggests that proper diagnosis and the right approach in unique cases of prolonged gestation in does with mummified fetuses along with live fetus can be managed successfully without surgical intervention.

Acknowledgement

The authors are thankful to Dr. Shiv Prasad, Professor, Department of Veterinary Gynaecology and Obstetrics, GBPUAT, Pantnagar for providing guidance and necessary facilities for carrying out the present work.

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