

DIAGNOSIS AND SUCCESSFUL MANAGEMENT OF FETAL MUMMIFICATION IN A NON-DESCRIPT GOAT: A CASE REPORT

**Nagendra Singh^{*}, Shubham Kumar, Akhil Patel, Manish Shukla, Atul Kumar Verma,
Pradeep Kumar Verma, Vijay Singh, Ashutosh Tripathi and Manish Shukla**

Department of Veterinary Gynaecology and Obstetrics, College of Animal and Veterinary
Sciences, SVPUAT, Meerut – 250110

E-mail: snagendrasingh23@gmail.com (*Corresponding author*)

Abstract: A non doe descript presented with prolonged straining and vaginal discharge was diagnosed with fetal mummification via ultrasonography. Incomplete cervical dilation and lack of fetal fluids precluded vaginal delivery. A successful cesarean section was performed. This case underscores the role of timely diagnosis and surgical intervention in managing reproductive complications

Keywords: Doe, Incomplete cervical dilation, Mummification,

Introduction

Fetal mummification has been reported across various domestic species—including cattle, sheep, goats, horses, pigs, dogs, and cats—with the highest prevalence observed in swine. In small ruminants, this condition remains relatively rare and can occur in both single and multiple gestations. It is often associated with infectious agents such as *Chlamydophila* spp., *Toxoplasma gondii*, border disease virus, and *Coxiella* spp., which can disrupt normal fetal development and lead to mummification (LeFebvre, 2015). Maternal nutritional deficiencies—particularly inadequate energy and protein intake—are also significant contributing factors in sheep and goats (Pugh and Baird, 2012). The most commonly observed form in small ruminants is papyraceous mummification, which occurs when fetal death takes place during mid to late gestation. In these cases, abortion does not occur due to the continued presence of a functional corpus luteum, which inhibits the onset of parturition. Over time, amniotic and allantoic fluids are gradually resorbed, preserving the fetus in a dehydrated, parchment-like state within the uterus (Noakes et al., 2009). The maternal placenta also undergoes involution, and the fetal membranes become dry and shriveled. According to Roberts (1986), pregnancy can progress to term when mummification affects only some of the fetuses, with viable ones continuing to develop normally. Inadequate nutrition remains a major predisposing factor, especially in goats

carrying twins or triplets (Mahajan et al., 2022). This case report presents the effective clinical management of a rare incidence of fetal mummification in a doe.

Case history and observations

A non descript doe with body weight 35 kg was presented to the veterinary Clinical Complex, SVPUAT, Meerut, with the complained of straining and a reddish vaginal discharge over the previous 30 hours, but parturition did not advance. There was no prior history of a water bag burst. The doe appeared anorectic, dull and depressed. The animal was earlier examined by a paravet as well. However, a fetus was found on abdominal ballottement. On ultrasonography, Fetal fluid was insufficient and a hyperechoic image of the fetal vertebrae. It was decided to perform a caesarean surgery because vaginal delivery was not possible due to incomplete cervical dilation and inadequate fetal fluid.



Fig 1: Mummified fetus

Treatment

Prior to the aseptic caesarean procedure, the doe was first placed in right lateral recumbency and the ventro lateral oblique incision site was cleaned, shaved, and prepped. 2% lignocaine hydrochloride was infused into the incision site to desensitize it. A cut measuring seven

centimeters was made on skin. After this, incisions were made to the skin, fascia, parietal peritoneum, muscles, and visceral peritoneum. An incision was made along the greater curvature of the left uterine horn, through which a non-viable mummified fetus was extracted (Figure 1). The uterine incision was sutured using a lamberts suture followed by a cushing suture pattern using Vicryl No. 2. A horizontal mattress design was stitched into the skin using Nylus No. 2. Throughout the entire process, all hygiene measures were followed. Postoperative management, 5% DNS (500 ml) was recommended along with injections of multivitamins (2 ml I/V), enrofloxacin (5 mg/kg body weight I/M), flunixin meglumine (1.1 mg/kg body weight I/M), and pheniramine maleate (2 ml I/M). Postoperative treatment was maintained for five consecutive days. Complete healing of the skin was observed by day ten, at which point the sutures were removed.

Discussion

Fetal mummification in animals occurs when specific predisposing factors align within a critical timeframe, leading to fetal death without expulsion. This condition is more commonly reported in polytocous species, such as pigs and small ruminants, than in monotocous animals. In swine, a genetic predisposition has been proposed (Wang et al., 2021), while in small ruminants, infectious causes are frequently implicated (Whitt et al., 2023). Identified infectious agents in small ruminants include *Toxoplasma gondii*, *Chlamydophila* spp., Border disease virus, and *Coxiella burnetii* (LeFebvre, 2015). Viral infections often spare the uterine environment, whereas bacterial infections leading to fetal maceration typically result in a poorer reproductive prognosis (Whitt et al., 2023). Many of these pathogens adversely affect the fetal membranes, potentially compromising reproductive efficiency in subsequent pregnancies. Non-infectious etiologies, such as uterine torsion, have also been documented. Prostaglandin F_{2α} is commonly used to induce uterine evacuation in goats, in this case PGF_{2α} did not used due to insufficient fetal fluids or incomplete cervical dilation.

Conclusion

Fetal mummification in goats is a rare reproductive disorder with an unclear etiology. The choice of treatment should be based on the type of mummification, stage of gestation, and overall health status of the dam. Accurate diagnosis through ultrasonography and clinical examination is essential for effective intervention. In cases where PGF_{2α} is contraindicated or proves ineffective, surgical intervention remains the definitive treatment. Prompt and appropriate management is crucial to prevent secondary complications and preserve the reproductive potential of the animal.

Acknowledgement

Authors are thankful to the Head, department of VGO and Incharge of VCC, SVPUAT Meerut for extending necessary facilities.

Conflict of interest

Authors have no conflict of interest with any one about this manuscript.

References

- [1] Lefebvre, R.C. (2015). Fetal mummification in the major domestic species: current perspectives on causes and management. *Veterinary Medicine: Research and Reports*, 233-244.
- [2] Mahajan, M., Prasad, S., Singh, V., Tevatia, G. S., & Verma, P. (2022). Prolonged gestation due to mummified foetuses in conjunction with normal foetus in Barbari doe.
- [3] Narwade, P., Jena, D., Ravi, S. K., Balamurugan, B., Mishra, R. M., & Kadam, R. G. (2024). Fetal Mummification in a Doe: A Comparative Case Study. *Uttar Pradesh journal of Zoology*. 45 (24): 139-143.
- [4] Noakes DE, Parkinson TJ, England GW. *Veterinary Reproduction and Obstetrics*. (2009). Edn 9, Elsevier Ltd. London, 139-368.
- [5] Pugh, D.G., & Baird, A. N.N. (2011). *Sheep & Goat Medicine-E-Book: Sheep & Goat Medicine-E-Book*. Elsevier Health Sciences.
- [6] Roberts, S.J. (1986). *Veterinary obstetrics and genital diseases*. 3rd edition. Ithaca, New York. 213-218.
- [7] Wang, S., Wu, P., Wang, K., Ji, X., Chen, D., Jiang, A., ... & Tang, G. (2021). Transcriptome analysis reveals key genes and pathways associated with piglet fetal mummification. *Genome*, 64(12), 1029-1040.
- [8] Whitt, E., Patrick, H., Jarrin, P., & Prado, T. (2023). Fetal mummification in a goat. *Clinical Theriogenology*, 15.