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Mummified fetus in a crossbred Holstein Friesian cow: A case report

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Abstract

Fetal mummification is a pathological condition characterized by intrauterine death of the fetus without microbial contamination, followed by resorption of fetal fluids and retention of a dry, firm fetal mass. A crossbred Holstein Friesian cow was presented with a history of prolonged gestation of approximately 320 days without any signs of parturition, despite confirmation of pregnancy at 90 days post-insemination. Clinical examination revealed normal vital parameters. Rectal examination identified a contracted uterus containing a firm, immobile fetal mass with absence of fetal fluids, placentomes and fremitus. A persistent corpus luteum was observed. Vaginal examination revealed a completely closed cervix with no vaginal discharge. Based on these findings, the case was diagnosed as fetal mummification. Therapeutic management was carried out using prostaglandin $F_{2\alpha}$ to induce luteolysis, resulting in cervical dilation and successful expulsion of the mummified fetus within a few days. The case highlights the importance of thorough clinical examination in differentiating fetal mummification from other uterine conditions such as maceration and emphasizes the effectiveness of hormonal therapy in its management.

Keywords: Cattle, crossbred Holstein Friesian, mummified fetus, $PGF_{2\alpha}$, luteolysis

1. Introduction

The dairy sector is a major contributor to the Indian economy, where reproductive efficiency plays a crucial role in maintaining productivity and profitability. Among the various reproductive problems in dairy cattle, pregnancy losses are of significant concern due to their direct economic impact. One of the notable forms of such loss is fetal mummification, which not only results in fetal death but also prolongs the inter-calving interval, thereby reducing herd efficiency (Selvaraju *et al.*, 2020) ^[1]. The condition is seldom seen during early gestation because embryonic or early fetal death occurring before ossification typically leads to complete resorption of fetal tissues (Shivamurthy *et al.*, 2026) ^[2]. In contrast, mummification usually occurs during mid-gestation, between the third and eighth months, when the fetal skeleton has developed and resorption is no longer possible (Kumar *et al.*, 2015) ^[3]. Following fetal death, the process involves gradual dehydration and shrinkage of the fetus due to the resorption of fetal fluids and placental components, ultimately resulting in a dry, firm mass retained within the uterus (Vikram *et al.*, 2020) ^[4]. A characteristic feature of this condition is the presence of dark brown or chocolate-colored material surrounding the fetus (Kumar *et al.*, 2017) ^[5]. Multiple factors have been implicated in the etiology of fetal mummification, including environmental stress (such as heat), genetic predisposition, placental abnormalities, toxins, infectious agents and mechanical influences (Amin *et al.*, 2025) ^[6]. Furthermore, recent research suggests that affected animals may exhibit alterations in biochemical, endocrine and mineral profiles, indicating that the condition may involve systemic physiological changes (Amin *et al.*, 2025) ^[6]. The present study describes a case of fetal mummification in a Holstein Friesian crossbred cow and its successful therapeutic management, highlighting the importance of timely diagnosis and appropriate intervention.

2. Case History and Observation

A Holstein Friesian crossbred cow in its second parity was presented with a history of absence of parturition signs even after completion of the expected gestation period.

The duration of pregnancy had extended to approximately 320 days following artificial insemination. Pregnancy had previously been confirmed at around 90 days post-insemination. On general clinical examination, the animal appeared healthy with normal vital parameters and maintained appetite. However, detailed reproductive examination revealed abnormalities. Rectal palpation indicated a tightly contracted uterus enclosing a firm, immobile fetal mass. There was no evidence of fetal fluids, placentomes or uterine fremitus. Further evaluation through vaginal examination revealed a completely closed cervix without any discharge. Based on these clinical observations, the condition was diagnosed as fetal mummification. Subsequently, appropriate therapeutic intervention was undertaken, which included per vaginal removal of the mummified fetus.

3. Treatment and Discussion

The animal was initially treated with valethamate bromide at a total dose of 50 mg administered intramuscularly to promote cervical relaxation, followed by cloprostenol sodium at a dose of 500 µg to induce luteolysis. After 24 hours, per vaginal examination revealed slight cervical dilation (approximately one finger width) along with the presence of brownish discharge. Upon re-examination after 48 hours, the cervix was found to be fully dilated and fetal parts were palpable. The animal was properly restrained and 5 ml of 2% lignocaine hydrochloride was administered to facilitate manipulation. Gentle traction was then applied, resulting in successful per vaginal removal of the brownish, chocolate brown colored mummified fetus along with its leathery parchment like fetal membranes (Fig. 1). Following removal, the uterus was thoroughly lavaged using normal saline and povidone iodine solution. Intrauterine therapy was carried out using four Uromet boluses (containing nitrofurazone and urea). Post-operative care included administration of streptopenicillin (2.5 g, intramuscular), meloxicam (0.2 mg/kg, intramuscular) and chlorpheniramine maleate (0.5 mg/kg, intramuscular) for three consecutive days. The animal recovered uneventfully without any complications.

The management of fetal mummification can be either medical or surgical, depending on factors such as duration of the condition, size of the fetus and response to treatment (Kalyan *et al.*, 2022) [7]. The condition is primarily associated with persistence of the corpus luteum, leading to continued progesterone secretion, which inhibits uterine contractions and prevents cervical dilation (Alok and Atul, 2018) [8]. Medical management is generally aimed at inducing luteolysis using prostaglandins, thereby reducing progesterone levels. This facilitates uterine contractions and cervical dilation, allowing expulsion of the mummified fetus, typically within 2-4 days (Jackson and cooper, 1977) [9]. In the present case, administration of cloprostenol sodium successfully induced cervical dilation and enabled vaginal delivery of the fetus. Similar successful outcomes using prostaglandin-based therapy have been documented by several authors (Vishwakarma *et al.*, 2021; Kalyan *et al.*, 2022; Shivamurthy *et al.*, 2026) [11, 2, 7]. In some cases, combination therapy involving oestradiol benzoate and prostaglandins has been reported to enhance treatment response (Ahmad Malik *et al.*, 2025; Kumar *et al.*, 2020) [12, 10]. However, not all animals respond to medical therapy, particularly in advanced or complicated cases. In such situations, surgical intervention such as hysterotomy may be required. Previous reports have described successful removal of mummified fetuses through flank laparohysterotomy in non-responsive cases (Dutt *et al.*,

2017) [13]. The present case highlights that timely diagnosis and appropriate hormonal therapy can effectively resolve fetal mummification, avoiding the need for surgical intervention and ensuring favorable recovery.



Fig 1: Mummified fetus with leathery parchment like placenta

4. Conclusion

Although fetal mummification is relatively uncommon in cattle, it represents an important reproductive disorder with notable economic implications. The present case emphasizes the importance of accurate clinical diagnosis and timely therapeutic intervention. Appropriate hormonal treatment followed by careful manual removal can lead to successful resolution of the condition and restoration of reproductive function in affected animals.

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