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Successful management of papyraceous fetal mummification in a crossbred cow: A case report

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Abstract

A pluriparous crossbred cow has been brought to the Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal, with the history of delayed parturition, without showing any udder development. Gynaeco clinical examination revealed firm mass suggestive of fetus in a contracted uterus with lack of fetal fluids was observed and diagnosed as fetal mummification. Induction of parturition was carried out and the animal had an uneventful recovery.

Keywords: Cow, mummification, papyraceous, parturition

Introduction

Fetal mummification does not typically occur during the first trimester of pregnancy, as embryonic or fetal death before the development of fetal bones is usually followed by the absorption or resorption of both fetal and placental tissues. Two forms of mummification have been observed in animals: the hematic type in bovines and the papyraceous type in other species. The occurrence of fetal mummification in dairy cattle is rare and sporadic (Roberts, 1986) [7].

Fetal mummification in cattle is an uncommon pregnancy-related condition that may arise unexpectedly across indigenous, foreign, and hybrid breeds (Melendez *et al.*, 2020) [3]. Mummified fetuses often persist within the uterus and may require manual extraction-provided the cervix is sufficiently dilated-or intervention using prostaglandin F_{2α}, or surgical removal via caesarean section (Kumar *et al.*, 2017) [1] or colpotomy (Manokaran *et al.*, 2024) [5]. Comparable instances of fetal mummification have been documented in buffaloes as well (Manokaran *et al.*, 2024) [5] and goats (Kumar *et al.*, 2020) [8]. This study describes the successful management of a mummified fetus in a Jersey crossbred cow using a single dose of prostaglandin F_{2α}, leading to a successful recovery.

Case history and observation

A three-year-old Jersey crossbred cow, presenting with a history of delayed parturition despite full-term pregnancy, was admitted to the Veterinary clinical complex. The animal had been inseminated nine months prior, with pregnancy confirmed at the third month of gestation. Clinical evaluation revealed normal vital signs, along with regular feeding and voiding patterns. Vaginal examination indicated a patent birth canal but a constricted cervix, with an intact cervical seal. On rectal palpation, the cervix and uterus were located at the pelvic brim and abdominal cavity, respectively. The cervix was firm, and the uterus was tightly contracted around a hard mass, with no detectable fetal fluids. Neither placentomes nor fremitus were palpable. Ultrasonographic imaging showed contracted fetal structures, an empty eye socket, and the absence of fetal heartbeat or movement, confirming a diagnosis of fetal mummification.

Treatment and Discussion

A treatment protocol was initiated to induce parturition, utilizing Inj. Cloprostenol sodium (500 µg i.m.) and Inj. Dexamethasone (40 mg i.m.). Following 24 hours, per vaginal examination revealed two-finger dilation of the cervix and brownish discharge. After 48 hours, the cervix was fully dilated, and fetal parts became palpable. With complete lubrication of the birth canal and careful traction, the mummified fetus, along with its fetal membranes, was delivered vaginally. The mummified fetus was reddish-brown in color, with empty eye sockets (Fig. 1) Fetal fluids had been entirely absorbed, and the placental membranes were parchment-like and tightly adhered to the dehydrated fetus. Post-delivery, the cow received intravenous Dextrose normal saline (1000 ml), Oxytocin (30 IU), Enrofloxacin (5 mg/kg i.m.), Chlorpheniramine maleate (0.5 mg/kg i.m.), Meloxicam (0.2 mg/kg i.m.), and a Metcare bolus (5 g, containing Metronidazole and Urea). This regimen continued for three consecutive days, leading to the cow's full recovery.



Fig 1: Mummified fetus

In cattle, fetal mummification typically takes place during the mid to late stages of pregnancy, most often between the third and eighth month of gestation (Manokaran *et al.*, 2024) [5]. Although fetal mummification is more frequently observed in species that have multiple births, its occurrence in cattle remains relatively rare, with reported rates between 0.43% and 1.8% (Roberts, 1986; Hopper, 2006) [7, 4]. Fetal mummification occurs as a result of tissue breakdown (autolysis) and the absorption of fetal fluids within a sterile uterine environment. Progressive dehydration leads to fetal mummification. Additionally, bleeding between the uterine lining and the placenta gives the fetus and its membranes a characteristic reddish-brown discoloration (Noakes *et al.*, 2001) [6].

Fetal mummification arises from a combination of factors. Frequently implicated causes include twisting or pressure on the umbilical cord, genetic or chromosomal defects, abnormalities in placental structure, hormonal imbalances, and though uncommon-infections (Noakes *et al.*, 2001) [6]. Genetic predispositions to this condition have been observed in Jersey, Guernsey, and Friesian cattle. Recently (Marron *et al.* 2004) [2] identified a factor XI gene deficiency in 10 mummified fetuses, which is believed to be involved in the early stages of the blood coagulation pathway.

The retained fetus stays in the uterus because the corpus luteum fails to regress and establish persistent structure. In the absence of fetal signals necessary to initiate labor, the corpus luteum persists, allowing the pregnancy to continue for an indefinite duration. This condition is typically identified

during a clinical evaluation prompted by an unusually extended gestation period (Noakes *et al.*, 2001) [6]. It may go undetected, as the placenta and corpora lutea are capable of producing enough progesterone to maintain the pregnancy. The recommended treatment is inducing abortion through luteolysis with prostaglandins, which results in expulsion of the mummy within 2 to 4 days. This protocol was followed in the present case.

Fertility outcomes following the expulsion of a mummified fetus are typically favorable, with most cows successfully conceiving within one or two subsequent estrous cycles (Roberts, 1986) [7]. However, retaining affected females for future breeding is controversial unless they are of high genetic or productive value. If retained, care should be taken to avoid using semen from the same sire again.

Conflict of Interest

Not available

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Not available

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