

SURGICAL MANAGEMENT OF HAEMATIC FETAL MUMMIFICATION BY C-SECTION IN A JERSEY CROSSBRED COW

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Abstract: Fetal mummification is one of the gestational accidents that occur due to intra-uterine death of fetus commonly at fourth, fifth and six months of gestation. A 4 years old pluriparous Jersey crossbred cow was brought to the Obstetrics Unit of VCC, VCRI, Orathanadu with history of mild vaginal discharge, anorectic for past one day. The cow was inseminated 8 months back. On clinical examination animal was found to be normal. Vaginal examination revealed two fingers dilated external os of the cervix with thickened wall. During the rectal examination, the uterus was located in the abdominal cavity with hard and firm mass of the fetus inside the tightly contracted uterus was palpated, absence of the fetal fluid, fetal movement and placentomes were confirmed. A tentative diagnosis of fetal mummification was made with a strong probability of an anomalous fetus. The animal was treated for induction of parturition with PGF_{2α} (500 µg; i/m) for the course of two days and observed for 72-96 hours. The animal was repeatedly examined for the dilatation of the cervix daily for 3 days but animal does not respond to the PGF_{2α} treatment. Therefore, C section was performed as per standard protocol and a mummified fetus was delivered. The fetus was reddish brown in color and the eye balls were empty. Post operatively the animal was treated with antibiotic, anti-inflammatory, antihistamines for seven days as in patient in VCC, VCRI, Orathanadu. The animal had an uneventful recovery. After 60 days animal resumed normal estrous cycle.

Keywords: Fetal mummification, C section, Jersey Crossbred cow.

Introduction

Among various gestational disorders, fetal mummification and maceration form important cause of failure to achieve the target and imposes huge economic loss by extending the inter-calving period as well as fetal loss (Azizunnesa *et al.*, 2010). Fetal mummification and maceration have been described most frequently in large ruminants and mostly occur after the 1st trimester of gestation (Roberts, 1971). Fetal mummification is characterized by fetal death without concomitant luteolysis and adequate cervical dilation (Kumar *et al.*, 2013). Fetal mummification event being common when the death of fetus occurs after ossification of bones has begun and resorption cannot take place. In cattle, the incidence of fetal mummification is reported to be about 0.13- 1.8% (Barth, 1986) and occurs most frequently

between three and eight month of gestation (Kumar *et al.*, 2013). The chances increase with the advancement of gestation stage. The causes of mummification are poorly described, and it is considered that infectious agents like *Campylobacter fetus*, molds, leptospirosis and BVD-MD virus causing fetal death without abortion may result into mummification in cattle (Drost, 2007). The entire process of mummification takes several weeks, depending on the age of the fetus at the time of death. Once all fluids are completely resorbed, the fetal membranes and uterine wall adhere closely to the fetus, and the whole mass becomes brownish black, leathery in appearance, and odorless. Mummification that produces a dry, stiff fetoplacental unit with no exudate is called papyraceous mummification, and has been reported in dogs, cats, cattle, buffalo, and sharks. In the other type of mummification, known as hematic or chocolate mummification, a viscous adhesive material covers the mummified fetus. This type has been reported in cattle, buffalo, and dogs. Haematic mummification can occur following fetal death at ages ranging from 3 to 8 months of gestation. Since there is no fetal signal for the onset of parturition the corpus luteum is retained and the 'pregnancy' will be maintained for an unpredictable time. Fetal mummification associated with a persistent CL is observed mainly in cattle and goats which are dependent on progesterone (P₄) produced by the CL for the maintenance of pregnancy.⁸ In cattle, however, the placenta is capable of producing sufficient P₄ to maintain pregnancy between days 150 and 200 of gestation.¹⁸ After fetal death, the amniotic and allantoic fluids are resorbed, dehydrating the fetal tissues and annex membranes. Eventually, the caruncles disappear during the dehydration process. The longer the mummified fetus is retained, the dryer, firmer, and more leathery the tissues of the fetus become. The condition is often only diagnosed when the cow is examined because of a prolonged gestation period (Arthur *et al.*, 1996). This article describes the surgical removal of a mummified fetus from a Jersey cross bred cow.

Case history and Observation

A 4 years old pluriparous Jersey crossbred cow brought to the Obstetrics Unit of VCC, VCRI, Orathanadu with history of mild vaginal discharge and anorexia since a day before presentation and was inseminated 8 months back. On clinical examination all vital parameters were found normal. On vaginal examination revealed two fingers dilatation of external os of the cervix along with thickened wall was noticed. Hard and firm mass of the fetus along with the absence fetal fluid, fetal movement and placentomes were palpated in the tightly contracted uterus on rectal examination. Transrectal palpation and ultrasonographic examination show the mummified fetus as a compact, firm, and immobile mass without

placental fluid or placentomes (Fig. 3). The ultrasound examination reveals the absence of a heartbeat. The case was confirmatively diagnosed as fetal mummification.

Treatment and Discussion

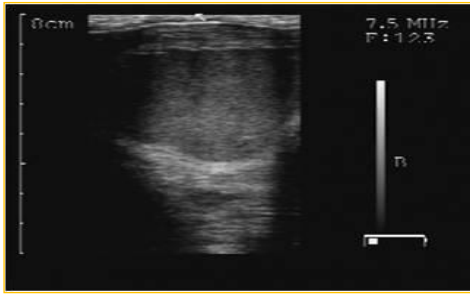
The animal was treated with 500 µg of PGF_{2α} (i/m) for the course of two days. The animal was repeatedly examined for the dilatation of the cervix daily for 3 days but animal does not respond to the PGF_{2α} treatment. Therefore, caesarean section was decided to perform lapro-hysterotomy by left flank incision under local infiltration anaesthesia with 2% lignocaine hydrochloride using left upper lateral (Oblique) approach. As per the standard procedure, about 15 inches long incision (Fig. 3) was made on skin and muscles were severed. The mummified fetus was removed from the uterus as reddish brown in color with the eye balls were empty and chocolate colored mucus coated. (Fig. 3) The uterine incision was closed with Cushing's followed by Lambert suture pattern using PGA-2 and abdominal muscles were closed with continuous interlocking suture pattern by using PGA-2. Finally, the skin was closed by horizontal mattress suture pattern with nylon. The crossbred cow was treated post-operatively as in patient in VCC, VCRI, Orathanadu with Streptopenicillin 5gm, i/m, 40 IU of Oxytocin i/m, Flunixin meglumine @ 1.1mg/kg b.wt i/m, Chlorphenaramine maleate @ 0.5mg/kg b.wt i/m, Meloxicam @ 0.5mg/kg b.wt i/m for seven days and skin sutures were removed after 10 days (Fig. 3). The animal had an uneventful recovery. After 60 days animal resumed normal estrous cycle.

Haematic mummification is one of the common features of abnormal fetal development in bovines. The incidence of this condition has been reported to vary between 0.13 to 1.8%, although in some herds it may be higher (Barth, 1986). The death of a fetus in the uterus without simultaneous luteolysis and cervical relaxation ensures fetal retention. Mummification results due to autolytic changes in fetal tissues and resorption of fetal fluids in a sterile uterine environment. It is rather difficult to exactly ascertain the cause of fetal death in mummification. Genetic factors have been implicated as the condition was observed to be more common in Jersey and Guernsey breeds and occurred with high frequency in one family of Friesian cows (Logan, 1973; Tadesse *et al.* 2015). Mummification is generally associated with a well-developed corpus luteum. The treatment of choice remains as induction of luteolysis by injection of PGF_{2α}, that follows the expulsion of the mummified fetus within 2 to 4 days (Jackson and Cooper, 1977; Katiyar *et al.* 2015). Present cases of mummified foetuses were also not responsive to the treatment and Caesarean section in these animals was done as describe by Bhuyan *et al.* (2016). As the uterus is generally tightly

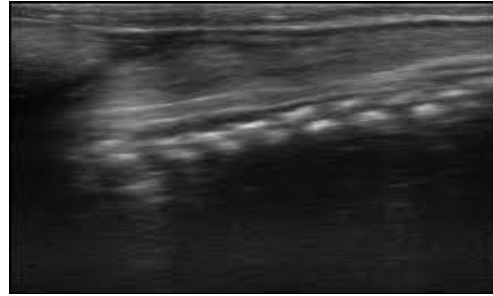
contracted around fetus in mummification, caudal flank laparotomy is suitable choice for caesarean section that was also used in this study (Lefebvre *et al.*, 2009). In cases of incomplete dilatation of cervix after hormonal therapy caesarean section seems to be last resort. In caesarean section, through left upper-flank incision in lateral recumbency and difficulty in suturing the comparatively smaller size of uterus than normal pregnancy (Dutt *et al.*, 2018). Therefore, delivery of mummified fetus through upper left flank approach is often advantageous.

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Ultrasound – mummified fetus



Ultrasound – mummified fetus- Irregular hyperchoic reflections



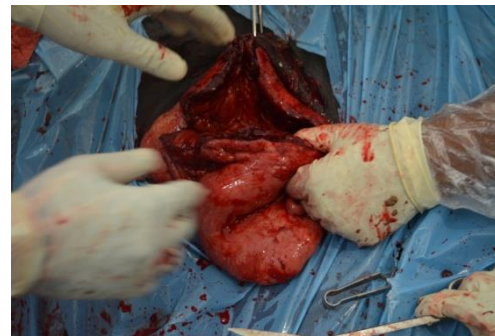
C Section



Removing the mummy



Mummified fetus



Suturing the uterus



Compactly packed Mummified fetus



Animal during discharge