



Research Article

SURGICAL MANAGEMENT OF TWIN FETAL MACERATION IN HOLSTEIN FRIESIAN CROSSBRED COW

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Abstract: The present case report discussed the successful surgical management of twin macerated fetuses in six years old, seven months pregnant primiparous Holstein Friesian (HF) crossbred cattle that showed abnormal vaginal discharge for more than 20 days. The fetal maceration was diagnosed with per-vaginal, per-rectal, and trans-rectal ultrasonography, followed by laparohysterotomy confirmed two macerated fetuses in separate uterine horns. On inspection of the ovaries, the corpus luteum was absent on both ovaries.

Keywords: Corpus luteum, Laparohysterotomy, Maceration, Twin, Ultrasonography

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Introduction

Fetal maceration may occur at any stage of gestation in all species but is most often seen in cattle [1,2]. In cows, multiple ovulations and simultaneous pregnancy rates have recently increased in parallel with milk production [3]. The development of two embryos at a time inside the uterus is ascribed as a twin pregnancy status, with an average incidence of 3.4% in Holstein Friesian cows [4]. 90% of bovine twin pregnancies are bicornual, and 10% are unicornual [5]. Twin fetuses are highly undesirable because they often result in abortion or immature development, leading to conception loss [6]. The twin's abortion rate (30-40%) after three months of gestation is much greater than the pregnancy of a single fetus. Fetal maceration occurs after the incomplete abortion of the fetus after three months of pregnancy when the bacteria enter the uterus from the vagina via a partially dilated cervix [7]. Following the bacterial invasion of the uterus, the fetus undergoes putrefaction and autolysis. The soft tissues are eaten, resulting in a mass of fetal bones and pus within the uterus [8,9]. However, the animal cannot quickly expel the bones through an inadequately dilated cervix. Under such circumstances, the disintegrated fetal parts and bones may be retained in the uterus for prolonged periods, necessitating medicinal therapy or surgical removal [10, 11]. Therefore, the present communication on successful surgical management of twin macerated fetuses in crossbred cattle was placed on record.

Case History and Clinical Examination

A six-year-old, seven-month pregnant pluriparous Holstein Friesian crossbred cow in her third lactation was presented at Dr. V. M. Jhala Clinical Complex, Deesa, with a history of frequent abdominal straining and vaginal discharge for 20 days. The cow was treated with repeated administration of the luteolytic drug at the fieldlevel, but the cow failed to expel the fetus. Clinically the cow was alert and active with a wet muzzle, but the rectal temperature was slightly elevated (102.6°F). The heart and respiration rate were recorded to be 68/minute and 26/minute, respectively. On per-vaginal examination, the cervix was dilated upto two fingers, and a foul smell and brownish watery vaginal discharge were noticed. In the per-rectal investigation, the uterine wall was thick, tightly contracted, and slightly doughy. Crepitating fetal bones were palpated at the anterior to internal os of the cervix in the uterine body. Placentomes were not palpated, and fremitus was also absent.

Trans-rectal B Mode ultrasonography (SonoSite, Titan, USA) revealed bright hyperechoic bony parts of the fetus in the right uterine horn with a lesser amount of uterine fluid [Fig-1]. Blood examination revealed all parameters found to be within normal range except total leucocyte counts ($11.2 \times 10^3/\mu\text{L}$) as well as neutrophil (69.1%) and eosinophil percentage (19.2%). Based on history, clinical observations, gynecological examination, and ultrasonographic findings, the presented case was diagnosed as a case of fetal maceration.



Fig-1 Transrectal ultrasonography revealed hyperechogenic bones floating in anechoic uterine fluid

Treatment and Discussion

Laparohysterotomy was performed under local anesthesia on the left side parallel to the milk vein in the right lateral recumbency as per the method described by Roberts (1971) [5]. Two separate incisions were made on the greater curvature of the exteriorized uterus to remove the macerated fetal parts from the left horn first and the right horn later. The soft tissue of the fetus was digested completely. All packed fetal bone pieces were grasped and removed gently with minimal damage to the uterine endometrium [Fig-2]. The endometrium was discoloured with no visible caruncular part. The uterine wall was thickened and pinkish in color. No corpus luteum-like structure was evident upon gross inspection of both ovaries during the caesarean operation [Fig-3].

Uterine horns were flushed with metronidazole and a normal saline solution. The surgical wound was closed in a routine manner. On examination, two pairs of completely macerated fetuses were retrieved from the uterus [Fig-4]. The cow was treated with an ample amount of fluid therapy (Inj. DNS 4 liter and Inj. RL 2 liter), analgesic (Melonex, 20 ml IV), antibiotics (Inj. Oxycontin, 60 ml IV), and hemostatic (Inj. M-bloc, 20 ml IM) along with supportive therapy. The following treatment was continued for five consecutive postoperative days. The antiseptic dressing was done with Povidone iodine and Himax ointment. The skin sutures were removed after 14 days of post-caesarean. The cow showed successful recovery without any complications.



Fig-2 Uterus packed with fetal bones



Fig-3 Absence of corpus luteum on the ovary



Fig-4 The remnant of twin macerated fetuses

Fetal maceration is a gestational disorder in which intra-uterine fetal death occurs after three months of gestation. Maceration of the fetus occurs due to bacterial infection. Retention of the dead fetus into the uterus with an incompletely dilated cervix leads to the invasion of bacteria through the vagina and causes the putrefaction and autolytic changes in a fetus [9,12,13]. Several authors have reported maceration of a single fetus [14,15]. In the present case, a twin macerated fetus was retrieved from two separate horns without a corpus luteum on either ovary. In contrast to the findings of the present case, Hailat *et al.* [16]

observed the twin macerated fetus in the cow's right uterine horn, which was associated with the persistent corpus luteum and closed cervix. The disappearance of the corpus luteum on the ovaries in the present case might be due to the repeated injection of a luteolytic agent. Generally, the corpus luteum is persistent in maceration. PGF2alpha is the drug of choice for the treatment of maceration and leads to expelling the fetus after 48-72 hrs [6]. In delayed cases, the animals will not respond to PGF2alpha treatment as reported in the present case, and the hysterotomy is the last choice to save the dam's life [14,15,17]. Cow recovered successfully and showed normal cyclicity after 1.5 months of C- section, as reported earlier [5].

Conclusion

Surgical management of a 7-month pregnant bicornual twin macerated fetus through the left lateral parallel to the milk vein site is the better exteriorization of the uterus and no complication in HF Crossbred cow if luteolytic therapy failed to expel the fetuses.

Application of research: The twin is uncommon in bovines and this helpful to clinicians for better management of twin maceration through caesarean section.

Research Category: Obstetrics

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Cultivar / Variety / Breed name: Holstein Friesian Crossbred Cow

Conflict of Interest: None declared

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

Ethical Committee Approval Number: Nil

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