

Short Communication

Clinical management of fetal maceration in doe- A case report

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ABSTRACT

A 2.5 years old Jamunapari cross-bred doe was brought to a veterinary hospital in Bangladesh with complaints of prolonged gestation (183 days) and a history of profuse bloody discharge at 150 days of gestation. On clinical examination, the cervix of the doe was found partially dilated. Both trans-abdominal ultrasonography and X-ray were performed to diagnose the condition and revealed a macerated fetus in the uterus. The animal was primarily attempted with medicine to abort the dead fetus without success. The case therefore alternatively successfully managed using laparo-hysterotomy with post-operative care. Techniques used in this study can be recommended to diagnose and treat goat patients having macerated fetus under clinical conditions.

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1. INTRODUCTION

A successful pregnancy is crucial for profitable yield in livestock farming. The gestation length in goat is 145-155 days and can be affected by both physiological and pathological conditions (Mellado et al., 2000). Fetal loss is a pathological condition during pregnancy that can occur for a variety of causes such as infection, hormonal imbalance, malnutrition and physical injury (Robertson et al., 2020). However, fetal maceration occurs when a fetus dies inside the uterus after ossification and its soft tissues undergo putrefaction and autolysis due to bacterial infection, leaving just bones floating in the uterus, therefore it is hard to determine clinically (Noakes et al., 2009). The fetal maceration usually occurs when the fetus dies at any fetal stage during pregnancy possibly due to uterine inertia and intrauterine infections,

resulting in fetal emphysema and maceration (Purohit and Gaur, 2011). Furthermore, the clinical management of macerated fetus is also challenging due to difficulties associated with diagnosis as pathognomonic sign is merely present in animals and the recovery rate is also variable following confirmatory diagnosis to undertake the therapeutic actions (Ate et al., 2011). In many cases, even after medicinal therapy the condition is often aggravated with subsequent infection in endometrium leading to endometritis (Noakes et al., 2009). On the contrary, the surgical therapy sometimes has a favorable prognosis, with a low likelihood of subsequent intrauterine infection (Drost, 2007). Therefore, the present study aimed to manage a case of fetus maceration in a doe using laparo-hysterotomy.

2.MATERIALS AND METHODS

Case history

A 2.5 years old Jamunapari doe was presented to the S. A. Quaderi Teaching Veterinary Hospital at Chattogram Veterinary and Animal Sciences University, Bangladesh with the history of prolonged (183 days) gestation. As per the report of the owner, there was history of profuse bloody discharge when the doe was about 150 days of gestation but animal failed to deliver offspring. However, the doe was recovered after 5 days without any noticeable peri-partum sign or event. Owner then attempted to initiate delivery by administering medicines to the animals with Liq. Utocare vet (uterine cleanser and ecbolic drug) at 10 ml orally at every 12 hours interval for 5 days but failed to initiate the delivery.

Clinical examination

The doe was depressed, dull, anorectic, and exhibited intermittent straining, evidenced rectal temperature of about 102°F and no vaginal discharge was found (Figure 1). The cervix was found to be partially dilated during per vaginal examination manually. Trans-abdominal ultrasonography was done for further confirmation of maceration, which revealed hyper-echoic disintegrating bone components of the fetus (Figure 2). At an X-ray, disintegrated fetal bones (Figure 3) further verified the present case as a fetal maceration.



Figure 1.Doe showed bloody discharge



Figure 2.Ultrasonic findings of fetal ribs



Figure 3.X-ray findings of macerated fetus



Figure 4.Removing macerated fetus during surgery

3. RESULTS

Treatment

Therapeutic approach: Initially, Prostaglandin 250 µg for once (Inj Prostenol®, ACI Ltd, 1 ml equivalent to 250µg IM), dexamethasone 4 mg (Inj Dexa vet®, Techno drugs Ltd, 2 ml IM), Calcium borogluconate (Inj. Cal-D-Mag Vet®, Renata Ltd. 50 ml IV) with normal saline (Inj. NS, ACME Ltd, 500 ml IV) were used to dilate the cervix and evacuate the uterus. The treatment was continued for 3 days but the situation remained unchanged in terms of cervical dilatation and fetal expulsion after treatment. Then, it was decided to do a laparo-hysterotomy by left flank approach under anesthesia as the condition got deteriorated gradually.

Surgical approach: The animal was cleaned and shaved aseptically at the left lower flank region. Diazepam @ 0.3mg/kg body weight was used to sedate the animal (Inj. Sedil, SQUARE Ltd, 1.4 ml IV). Before the procedure, the animal was given intravenous fluids (Normal saline, Inj. NS, 500 ml, IV) to improve its overall condition and combat toxemia. Following that, a laparo-hysterotomy was effectively performed with minimal contamination of the surrounding tissues utilizing a linear subcutaneous infiltration with 2% Lignocaine hydrochloride (Inj. Jasocaine, Jayson Ltd, 9 ml SC) along the incision line. A 15-inch long incision was incised on the skin, and the muscles were made separated, as per routine practice. The gravid uterine horn was exposed and draped to prevent uterine contents from leaking into the peritoneal cavity. On the gravid horn, an 8-inch-long incision was made using a scalpel, and the macerated fetal bones were removed (Figure 4 and 5). Normal saline and diluted povidone iodine solution were used to cleanse the uterus. The uterus was then sutured with Czerny, followed by a Cushing's suture pattern using Vicryl=0, and finally a basic continuous suture pattern utilizing absorbable suture materials (chromic catgut 1=0) to close the abdominal incision (peritoneum, muscle layer, and subcutaneous suture). Finally, a horizontal mattress suture pattern using nylon was used to suture the skin.

Post-operative treatment: Antibiotic (Oxytetracycline, Inj. Renamycin 100®, Renata Ltd, 3 ml IM), antihistaminic medicine (Pheniramine maleate, Inj. Hista Vet®, ACI Ltd, 1 ml IM), and non-steroidal anti-inflammatory drug (Ketoprofen, Inj. Kop vet®, SQUARE Ltd, 1 ml IM) were administered for 5 consecutive days after the surgery. Daily povidone iodine dressing was applied to the operative site. After 12 days, the skin sutures were removed. The operated goat reported by the owner to have recovered normally and resumed normal activity.



Figure 5. Macerated fetus

4. DISCUSSION

In this case, there was a history of bloody discharge at 150 days of pregnancy that resembled to the initiation of parturition however the animal did not deliver any kid. Cervix was found partially dilated in per vaginal examination and chosen for medicinal treatment primarily. The clinical condition was further verified and diagnosed by using both Ultrasonography and X-ray, which is probably the first time used in Bangladesh for detecting macerated fetus. However, both techniques are well recognized and widely used as means for assessing the fetal condition during pregnancy in developed country (Azizunnesaet al., 2019). Early maceration might explain the lack of discharge and closed internal os of the cervix. Application of several drugs including estrogen, prostaglandins and valethamate bromide may be documented if the cervix is

rigid and indurated or if the fetus is physically less macerated or due to fetal abnormal position or fetal oversize, which was comparable to the current instance (Ball and Brand, 1980). As previously described, manual removal of fetal bones per vaginum could also be performed, however it was difficult in that instance with corresponds to ther cases due to insufficient dilatation of cervix (Chakraborty et al., 2018). As a result, it was chosen to deliver the macerated fetus via the left flank approach in the present study, which is frequently advantageous as supported by Kumar et al. (2013).

As the fetus was not expelled within 72 hours following treatment of PGF₂, a caesarian section was performed as done previously by several authors for the management of similar condition in cow (Kumaret al., 2013) and doe (Aliciah et al., 2019). Although the overall prognosis of macerated fetus management is not favorable in the long run for future production of dam in consent of commercial condition but still has alternative management approach considering animal welfare.

5. CONCLUSION

A case of fetal maceration and its successful management in the goat has been reported in the current study. It is considered as an under-diagnosed problem in livestock sector particularly in small ruminants in Bangladesh. The diagnostic (ultrasonography, X-ray), hormonal and surgical approach applied in this case is therefore recommended to be used to solve the problem in veterinary practice.

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