Surgical Management of a Fetal Mummification in Beetle Doe: A Case Report

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Surgical Management of a Fetal Mummification in Beetle Doe: A Case Report

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List of abbreviations

Abbreviation	Elaboration
%	Percentage
et. al	And his associate
ESR	Erythrocyte Sedimentation Rate
PCV	Packed Cell Volume
TEC	Total Erythrocyte Count
TLC	Total Leukocyte Count
HSC	Higher Secondary Certificate
SSC	Secondary School Certificate
USG	Ultrasonography

Abstract

A 17-month-old beetle doe with dystocia having full-term pregnant was presented with a history of vaginal discharge for 24 hours followed by anorexia, weakness, dullness and depression at S.A. Quaderi Teaching Veterinary Hospital, Chattogram Veterinary and Animal Sciences University. Clinical examination reveals 102.3°F body temperature, a heart rate of 85/min and a respiration rate of 20/min. An X-ray was done to confirm the fetal presentation. In per-vaginal examination showed the uterus contained a fetal mass and that the cervix was fully dilated. Then mild traction was done with an obstetrical hook and the mummified fetus was removed using finger guided embryotomy knife. The post-operative care was done with an antibiotic, an analgesic, fluid therapy and mineral supplement. Finally, the doe was cured.

Keywords: Bettle goat, Mummified fetus, Dystocia, Per-vaginal, Doe.

Chapter 1: Introduction

Reproductive problems are a key factor in the production of livestock. According to (Aytuğ et al., 1990) while a variety of factors influence small ruminant fertility, fetal mummification is one of them. Fetal mummification is characterized by the conceptus dying, fetal fluids being absorbed, the corpus luteum remaining, and the uterus contracting tightly over the fetus to the point where it resembles a hard mass (Hemalatha et al., 2018). Although it is uncommon in sheep and goats, the prevalence of fetal mummification is frequently seen in domestic animals during the middle third of gestation (Anil et al., 2017). There have been estimates that mummification occurs up to 5% of the time (Anil et al., 2017). Fetal death usually results from a number of causes, including infections, torsion, compression of the umbilical cord, genetic disorders involving autosomes or sex chromosomes, placental malformations, and overpopulation of fetuses (Roberts, 1986). Several infectious diseases could be the cause of prenatal mummification in does, including toxoplasmosis, Chlamydophila, border disease, and Coxiella burnetti (Bisla et al., 2019). It is also a result of energy and protein shortages, especially between days 90 and 120 of pregnancy (Anil et al., 2017). In contrast to cattle and mares, the mummified fetus usually spontaneously aborts in sheep and goats or is cited as the cause of dystocia, not lengthening the gestation duration (Bisla et al., 2019). The ongoing presence of progesterone from a functional placenta (mare), a persistent corpus luteum (PCL) (cow), or some exogenous (progesterone injections) allows the mummification to maintain the uterus dormant (Vikram et al., 2020). In sheep and goats, singletons and a single fetus in a twin can both exhibit fetal mummification (Bisla et al., 2019). In this situation, the cervix is still completely closed, and the fetus will be sterile (Purohit and Gaur, 2011). The majority of mummified fetuses will stay in the womb until they are either surgically removed by cesarean section or treated to eject them. Prostaglandin F2 injection is the preferred method of treatment for this condition, and in the event of failure, cesarean section (Azizunnesa et al., 2009). This study is intended to document a case of fetal mummification in a beetle goat.

Chapter 2: Case Presentation

2.1 Case History:

On 18th February 2023, a full-term pregnant beetle goat with no kidding history was presented to the SAQTVH with a history of vaginal discharge from 24 hours ago. The owner complained that the doe showed anorexia, weakness, dullness, depression, and bloody mucoid vaginal discharge and also claimed that the doe was about 4 months pregnant. Based on his history clinical findings were bloody mucoid discharge from the vagina continuously, a body temperature was 102.3°F, a heart rate of 85/min and a respiration rate of 20/min.

2.2 Diagnostic test:

2.2.1 Ultrasonography:

First of all, we clean the ventral part of abdomen around umbilicus with a sharp blade. The frequency was set as 7.5MHz. Then ultrasound gel, which is composed of propylene glycol and water was rubbed on the head of transducer. The transducer was placed in the ventral part of abdomen around the umbilicus. The result of Ultrasunogrsphy (USG) showed that the fetus was dead and the gestation age of the fetus was about 135 days and a single number of fetus was present.

2.2.2 Radio-graphic imaging:

Though pregnancy determination is done through ultrasonography (USG) here we performed radiographic imaging to detect the exact position of the dead fetus. However this is not performed routinely as it may hamper the growth of the fetus, impracticality and cost. X-ray report revealed that the fetus was in abnormal presentation and its vertebral column was distorted (figure 1).

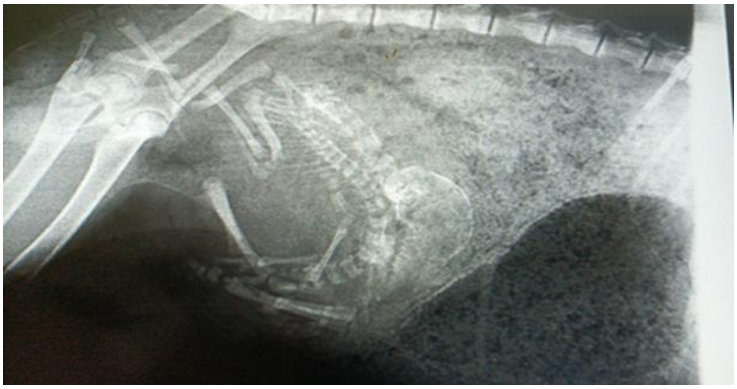

Figure 1. (X-ray) indicates the abnormal presentation of the fetus

2.2.3 Per-vaginal Examination:

For more confirmation first of all we clean the peri-vaginal area with normal saline (0.9%NaCl solution). Then we spray alcohol (70% Ethyl alcohol) as a disinfectant. After that, we put on gloves on the left hand and lubricated them with soap water. Then per vaginal examination was performed and it confirmed that the cervix was dilated with a solid fetal structure was palpate in the uterus.

2.2.4 Hematological and biochemical test:

To check health status approximately 7ml of blood was drawn out aseptically from the jugular vein where 3 ml was transferred to a sterile vial containing anticoagulant (K3 EDTA) to determine hematological parameters by Haemocytometer (Haemoglobin, Erythrocyte Sedimentation Rate, Packed Cell Volume, Total Erythrocyte Count, Total Leukocyte Count) and 3 ml of blood transferred to a vail without anticoagulant to determine biochemical parameters (Calcium, Phosphorus, Magnesium, Glucose, Total protein). The result showed a low blood calcium level (7.82mg/dl).

Table 1: Biochemical test result

Serum type	Result (mg/dl)	Normal range (mg/dl)
Calcium	7.82	9.0-11.6
Phosphorus	4.91	3.7-9.7
Magnesium	2.64	2.1-2.9
Glucose	67.28	48-76
Total Protien	5.25	6.1-7.5

Table 2: Hematological test result

Parameters	Result	Normal range
Hemoglobin	7.3g/dl	8-12g/dl
ESR	2mm	2-3mm/24hrs
PCV	27	22-38%
TEC	9.53million/cumm	8.0-18.0 million/cumm
TLC	11.0 thousands/cumm	4.0-13.0 thousand/cumm

2.3 Operative protocol:

A 1% potassium permanganate solution was used to scrub the doe's perineum thoroughly. After lubricating the vaginal tract with chlorhexidine lubricant (K-Y jelly®) a close examination of the birth canal was performed which revealed the birth canal was too small to deliver the fetus. After rupture and removal of placental membranes, the presenting fetus's limbs were gently tractioned but it did not work as the cervix of the doe was small. First of all, a forelimb was graved using an obstetrical hook (figure 2) then the limb was

amputated with a finger-guided embryotomy knife. The other one was removed following the same procedure. Then amputation was done to separate the body parts following the hind limbs through the same procedure. Finally, the head came out through fine traction with the obstetrical hook. A second look at the uterus and delivery canal revealed that there was not another fetus inside.

2.4 Post-operative care:

Following the fetus's evacuation, the doe was treated with 2 ml of Cloprostenol (Inj. Prostenol®) intramuscularly, along with intravenous fluid supplement 400ml (Inj. DNS 5%®) and 30 ml mineral preparation (Inj. Magical-28®) for once, intramuscular antibiotic injection penicillin and streptomycin 2.7ml (Inj. Strepto-pen® 2.5mg) and intramuscular non-steroidal anti-inflammatory drug, ketoprofen at a dose rate of 3.3mg/kg (Inj. Kop-vet®) the doe healed without incident after five days of medication continued. Following three more days of the same dosage and administration method, the patient was released from the hospital with a prescription for antibiotics and anti-inflammatory medicines. The goat was found to be quite active, feeding regularly, and having recovered without incident during the two-week follow-up visit.

Figure 2. Showing traction of fetal body parts with obstetrical hook

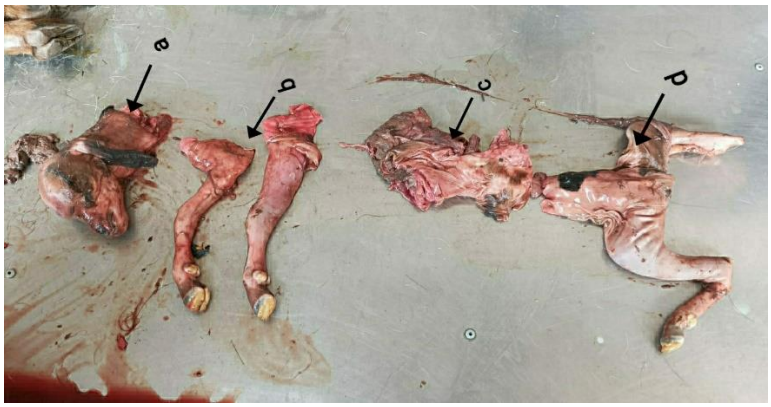

Figure 3. Showing different body parts of mummified fetus

(a.Head & Neck, b. Forelimbs, c. Thorax and Abdomen, d. Hindlimbs)

Chapter 3: Result and Discussion

According to Tutt's (1991) findings, which were corroborated by the current observation, fetal mummification in goats is uncommon but seems to be more likely during twin pregnancy. Anil et al. (2017) reported a case of dystocia where both fetuses were dead but only one fetus was mummified which supports our study. When a fetus dies in a domestic animal during the middle or last third of gestation without luteolysis or abortion, the fetus undergoes autolytic alterations, absorbs fetal fluids, and is mummified (Roberts, 2001). Even though a mummified fetus can abort spontaneously, veterinary assistance is typically needed to get the fetus to expel itself (Lefebvre et al., 2009). In the present case, insufficient cervical dilatation and wrong presentation were the primary cause of the mummified fetus's failure to expel. Thus fetotomy was done and the fetus was expelled out. Therefore, the present paper reports fetal mummification in a beetle doe has been managed successfully and without any difficulties (figure 4).

Figure 4. After removal of mummified fetus

Conclusion

This study showed the successful correction of mummified fetus of a beetle doe with fetotomy and the doe was survived.

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Biography

I am Mohammad Anisur Rahman, son of Abul Kashem and Nurunnesa Begum. I passed my Secondary School Certificate (SSC) examination from Kusumpura High School & College, Chittagong in 2014 and my Higher Secondary Certificate (HSC) examination from Patiya Govt. College, Chittagong in 2016. I enrolled for Doctor of Veterinary Medicine (DVM) degree at Chittagong Veterinary and Animal Sciences University (CVASU), Bangladesh. I have an immense interest in working in the field of medicine and surgery.