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Retained emphysematous fetus in a Mecheri ewe: A case report

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Abstract

A pluriparous Mecheri ewe was presented to the Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal, with a history of lambing two days earlier. The owner reported that the fetal membrane had been removed manually after lambing, following which the ewe became anorectic, dull, and depressed. General clinical examination revealed congested mucous membranes and a rectal temperature of 38.8 °C. Examination of the external genitalia showed an edematous vulva and congested vaginal mucosa without any vaginal discharge. Vaginal examination revealed that the cervix was dilated to admit one finger, and a dead emphysematous fetal limb was found. Abdominal palpation revealed a hard mass with palpable crepitations. Radiographic examination confirmed the presence of an emphysematous retained fetus with a distinct fetal skeleton. Based on clinical and radiographic findings, the case was diagnosed as retained emphysematous fetus, and emergency caesarean section was performed. A dead emphysematous male fetus was successfully removed, and the uterus was sutured as per standard. Post-operatively, the ewe was treated with fluid therapy, antibiotics, anti-inflammatory drugs and ecbolics. Skin sutures were removed on the 10th postoperative day, and the animal recovered uneventfully. The present case report describes the successful surgical management of a retained emphysematous fetus in a Mecheri ewe.

Keywords: Retained fetus, emphysematous fetus, caesarean section, Mecheri ewe, sheep

Introduction

Retained fetus is a reproductive disorder in which a dead fetus remains within the uterus for an extended period instead of being expelled through abortion or parturition. In sheep and goats, retention of a dead fetus may occur as fetal mummification, fetal maceration, or fetal emphysema, depending on the intrauterine environment and the presence or absence of bacterial contamination. Dystocia associated with fetal death, abnormal fetal disposition, and multiple pregnancies is an important cause of perinatal mortality and economic losses in small ruminant production systems (Østerås, *et al.*, 2007) ^[6]. The incidence of dystocia is generally higher in multiple pregnancies than in single pregnancies, although oversized single fetuses may also contribute to difficult birth. Fetal causes, including fetal death, malposition, congenital abnormalities, and emphysematous changes, are considered important etiological factors of dystocia in sheep and goats (Purohit, 2006) ^[8]. Fetal emphysema develops when a dead fetus is retained within the uterus for several days and undergoes putrefactive decomposition following invasion by gas-producing bacteria. The accumulation of gas within fetal tissues results in enlargement of the fetus, tissue crepitation, and increased difficulty during parturition. Furthermore, maternal conditions such as uterine inertia, incomplete cervical dilatation, uterine rupture, and other reproductive disorders may contribute to fetal retention and dystocia (Purohit, 2006) ^[8]. The present case report describes a rare case of prolonged retention of an emphysematous fetus causing dystocia in a Mecheri ewe and its successful surgical management by caesarean section, resulting in complete recovery of the dam.

Case History and Observation

A pluriparous Mecheri ewe (fourth parity) was presented to the Veterinary Clinical Complex, Veterinary College and Research Institute (VCRI), Namakkal. The owner reported that the ewe had delivered a live female lamb two days earlier. The fetal membrane was reportedly removed manually after lambing. Since then, the ewe had become anorectic, dull, and depressed, although urination and defecation were normal. General clinical examination revealed congested mucous membranes and a rectal temperature of 38.8°C. Examination of the external genitalia showed an edematous vulva and congested vaginal mucosa with no vaginal discharge. Vaginal examination revealed that the cervix was dilated sufficiently to admit one finger, and a dead emphysematous fetal limb was palpated. Abdominal palpation revealed a hard mass associated with palpable crepitations, suggestive of an emphysematous fetus. To confirm the diagnosis, radiographic examination was performed, which revealed the presence of an emphysematous retained fetus with a clearly identifiable fetal skeleton within the uterus.

Treatment and Discussion

Considering the poor prognosis associated with prolonged fetal retention and emphysema, an emergency caesarean section was performed to save the life of the dam. The surgical site was shaved and aseptically prepared by repeated scrubbing with povidone-iodine solution. The surgery was performed through a left flank approach under local anaesthesia using an inverted L block with 2% lignocaine hydrochloride diluted with normal saline. Following adequate anaesthesia, the skin, subcutaneous tissue, and abdominal muscles were incised sequentially to enter the abdominal cavity. The gravid uterine horn was exteriorized, and an incision was made along with the greater curvature of the gravid uterus. A dead emphysematous male fetus (Fig. 1) was successfully removed. The uterine lumen was thoroughly cleaned and lavage with sterile normal saline containing metronidazole. The uterine incision was closed using the Utrecht suture pattern with chromic catgut No. 1. The peritoneum and abdominal muscles were opposed using a Ford interlocking suture pattern with chromic catgut No. 1. The subcutaneous tissue was closed with a subcuticular pattern using polyglycolic acid (PGA) No. 1, and the skin was closed with a cross-mattress suture pattern using cotton thread. The surgical wound was cleaned and dressed aseptically. Post-operatively, the ewe was administered Inj. Ringer's lactate (10 mL/kg body weight, IV), Inj. Metronidazole (15 mg/kg body weight, IV), Inj. Ceftriaxone (15 mg/kg body weight, IV), Inj. Flunixin meglumine (1.1 mg/kg body weight, IM), Inj. Chlorpheniramine maleate (0.5 mg/kg body weight, IM), and Inj. Tribivet (5 mL, IV). The above medications were continued for four additional days. Oral administration of Bol. Involon was advised for four days to promote uterine involution. Skin sutures were removed 10 days after caesarean, and the ewe showed uneventful recovery with restoration of normal appetite, activity, and vitality. The occurrence of fetal emphysema is commonly associated with prolonged dystocia and delayed obstetrical intervention. Brounts *et al.* (2004) [3] reported that fetal death followed by prolonged retention predisposes the dam to complications such as toxemia, metritis, septicemia, and reduced reproductive performance. Similarly, Miesner and Anderson (2008) [5] observed that emphysematous fetuses pose

considerable obstetrical challenges because the accumulation of gas within fetal tissues results in marked enlargement, tissue friability, and difficulty in manipulation and extraction. Consequently, fetotomy or caesarean section may be required depending on the condition of the fetus and the status of the dam. In small ruminants, prolonged retention of a dead fetus may lead to uterine contamination, endometrial damage, and impairment of future fertility. Jackson (2004) emphasized that early diagnosis and prompt removal of the dead fetus are essential to preserve the reproductive potential of the dam. Likewise, Bhattacharyya *et al.* (2015) [2] identified fetal death, fetal abnormalities, and abnormal fetal disposition as major causes of dystocia in goats and highlighted the importance of timely diagnosis and corrective intervention to minimize maternal complications.

The findings of the present case agree with these reports, as prolonged retention of the dead fetus resulted in emphysematous changes and dystocia, necessitating immediate surgical intervention. Treatment of emphysematous fetuses primarily involves prompt removal of the fetus, prevention of uterine infection, and supportive therapy aimed at preserving the life and future fertility of the dam. Dalal and Singh (2017) [4] successfully managed dystocia caused by an emphysematous fetus in a goat through per-vaginal delivery followed by appropriate postoperative treatment, emphasizing that early intervention reduces maternal complications. Similarly, Praveen *et al.* (2022) [7] reported successful correction of dystocia caused by a dead emphysematous fetus through fetotomy procedures, including decapitation and traction, followed by antibiotic and analgesic therapy, resulting in uneventful recovery.

In more complicated cases where vaginal delivery is not feasible, surgical intervention becomes the treatment of choice. Ahuja *et al.* (2020) [1] reported successful management of an emphysematous fetus complicated by ring womb and uterine necrosis in a goat through caesarean section and partial hysterectomy. These reports indicate that the choice of treatment depends on the condition of the fetus, the degree of cervical dilatation, and the overall health status of the dam.

In the present case, the successful recovery of the ewe could be attributed to timely diagnosis, prompt caesarean section, and appropriate postoperative medical management. Administration of broad-spectrum antibiotics, anti-inflammatory drugs, fluid therapy, and supportive medications likely prevented uterine infection and systemic complications. Similar therapeutic approaches have been reported by Ahuja *et al.* (2020) [1] and Dalal and Singh (2017) [4], who observed favorable outcomes following prompt removal of emphysematous fetuses and adequate postoperative care. Furthermore, Noakes *et al.* (2019) emphasized that the prognosis is generally favorable when intervention is undertaken before the onset of severe uterine pathology or septicemia. The favorable outcome observed in the present case agrees with the findings of Dalal and Singh (2017) [4] and Praveen *et al.* (2022) [7], who reported that prompt fetal extraction combined with antimicrobial and anti-inflammatory therapy significantly improves recovery and reduces the risk of postpartum reproductive complications. Therefore, early recognition and timely management of retained emphysematous fetuses are essential for reducing maternal morbidity and preserving reproductive efficiency in small ruminants.



Fig 1: A dead emphysematous fetus

Conflict of Interest

Not available

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Not available

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