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Haematic fetal mummification as a cause of dystocia in a non-descript doe: A case report

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Abstract

A 3-year-old pluriparous non-descript doe in advanced gestation was presented with prolonged straining and failure to deliver. Ultrasonography confirmed a non-viable singleton fetus with oligohydramnios. Following induction of parturition with cloprostenol (PGF_{2α}), the cervix dilated completely, and a haematic mummified fetus was successfully delivered by obstetrical correction and manual traction. The doe recovered uneventfully after supportive therapy.

Keywords: Goat; pregnancy, mummification, dystocia, traction

Introduction

Not aborted, not resorbed, but preserved fetal mummification is an uncommon reproductive disorder characterized by aseptic intrauterine fetal death, retention of the fetus, and resorption of fetal fluids (Noakes *et al.*, 2009) ^[16] resulting in fetal loss, prolongs the inter-calving or kidding interval, and causes significant economic losses to livestock farms (Sutradhar *et al.*, 2010) ^[18]. Fetal mummification is classified into papyraceous which is characterized by dry, shriveled, parchment-like fetal membranes and is commonly reported in dogs, cats, pigs, and horses, whereas hematic mummification is characterized by chocolate-brown fetal membranes due to blood pigment deposition and is predominantly observed in cattle, buffaloes, sheep, and goats (Noakes *et al.*, 2009) ^[16]. It is a rare obstetrical disorder in small ruminants, typically occurring during the middle to the last third of gestation (Roberts, 1971) ^[17]. Although an incidence of approximately 4% has been reported among gestational disorders, its occurrence in does and ewes remains uncommon (Vikram *et al.*, 2020) ^[20]. The etiology of fetal mummification is multifactorial, with major infectious causes in caprine including *Toxoplasma gondii*, *Chlamydia* spp., Border disease virus (Pestivirus), and *Coxiella burnetii* (Edmondson *et al.*, 2012; Lefebvre, 2015) ^[10, 14]. Non-infectious causes include fetal trauma (Broaddus *et al.*, 2009; Dubey, 2009) ^[8, 9], umbilical cord compression (Mahajan and Sharma, 2002) ^[15], uterine torsion, defective placentation (Irons, 1999) ^[12], genetic and chromosomal abnormalities, hormonal imbalances, and protein or energy deficiencies during advanced gestation, with affected animals often appearing weak and anemic (Lefebvre, 2015) ^[14]. The present case report describes the successful management of dystocia due to a single mummified fetus in a non-descript doe, highlighting early diagnosis and prompt obstetrical intervention.

Anamnesis and Clinical observations

An adult 3 year old pluriparous non-descript doe weighing around 20 kg and in advanced pregnancy was presented to TVCC of MJF Veterinary college, Jaipur with a history of intermittent straining, with a string of clear to whitish vaginal discharge since 12 h without any progress along with inappetence and isolation from the flock. On clinical examination, doe was dull with normal rectal temperature and respiration rate. Per-vaginal examination revealed cervical dilation to the extent of about two finger and detailed trans-abdominal ultra-sonographic examination revealed single fetal skeletons devoid of any fetal heartbeat and with oligohydramnios. Hence, it was decided to terminate the pregnancy by administering 125 µg of Vetmate® Inj. (Cloprostenol- Synthetic Prostaglandin F_{2α} 250 µg /

mL) IM and was advised to observe for fetal expulsion. On the same day evening, the doe was brought back with complaint of non-progressive straining upon gynaecological examination, cervix was completely dilated and a dry rubber like compact structure in pelvic brim with malposition was palpated. The case was tentatively diagnosed as dystocia due to fetal mummifications.

Treatment and discussion

The perineal portion was thoroughly washed with 1% Potassium permanganate and liquid paraffin for lubrication. Then, well lubricated gloved hand was passed per vaginally and a mummified fetus (Fig.1) was recovered per vaginally via manual traction after correction. The foetal consistency and deep brown colour pigmentation from caruncular hemorrhage was typical of haematic type of mummification. The fetal membranes were shriveled and dried with fetus lacking eye ball and SC layer. The biometry of the mummified fetus delivered was also recorded in (Table.1).

Table 1: Biometry of mummified fetus and fetal membranes

Sr. No	Characteristics of a mummified fetus	Measurements
1	Weight of the mummified fetus along with placenta	122.0 gm
2	Weight of the mummified fetus alone	78.0 gm
3	Crown Rump Length (CRL)	21 cm
4	Number of rows of fetal cotyledons on placenta	3
5	Approximate number of cotyledons	83
6	Maximum width of placenta	5.0 cm
7	Minimum width of placenta	2.0cm
8	Total length of placenta	77.0 cm
9	Umbilical cord length	12.0cm
10	Length of forelimbs	7.0 cm
11	Hind limb length	9.0 cm
12	Head length	4 cm
13	Orbit length	1.5 cm
14	Approximate age of the fetus	20-21 weeks



Fig 1: Advanced pregnant non-descript doe



Fig 2: A mummified fetus

The doe was administered the necessary post-kidding treatment, which included Inj. Ceftriaxone @ 10 mg/kg b.wt. (Intacef®) IV, Inj Meloxicam @ 0.5 mg/kg b.wt. (Melonex®) IM for five consecutive days. As a supportive therapy Inj. Milk fever formula®- 60 mL slow IV to compensate for the loss of calcium ions due to prolonged straining, along with these, uterine cleanser, Liq Utrevive® 40 mL per oral twice a day for five days was prescribed to evacuate and cleanse the uterus from any remnant. The doe was discharged post 2 h of delivery and owner was advised to follow up the prescribed treatment.

Fetal mummification as a cause of dystocia in does has been documented in the literature in association with a single mummified fetus (Bisla *et al.*, 2018) [6], a mummified co-twin with a normal dead fetus (Bawaskar *et al.*, 2018) [4], and a mummified fetus accompanied by two normal fetuses (Bisla *et al.*, 2019) [7]. In polytocous species such as goats, the condition is generally associated with prolonged gestation and is best diagnosed using ultrasonography, with Doppler ultrasonography serving as a valuable adjunct for assessing fetal viability. Mummification involving one or two fetuses has also been reported by Bisla *et al.* (2019) [7], Vinayak *et al.* (2020) [21], Arun *et al.* (2023) [3]. Twin pregnancies have been reported to predispose does to fetal mummification more frequently than singleton pregnancies (Bhardwaj and Kumar, 2014; Anil *et al.*, 2017; Alagar *et al.*, 2017; Hemalatha *et al.*, 2018) [5, 2, 1, 11]. However, the present case involved a single mummified fetus, suggesting that factors other than multiple gestation, such as placental insufficiency, fetal trauma, compromised fetal blood supply, defective placentation, umbilical cord abnormalities, or genetic defects, may have contributed to the condition (Jainudeen, 1992) [13]. Although spontaneous expulsion of mummified fetuses may occasionally occur, they are more commonly retained in utero well beyond the normal gestation period (Jainudeen, 1992) [13]. The successful outcome in the present case demonstrates that manual per-vaginal delivery is feasible when adequate cervical dilation has occurred. In cases with an incompletely dilated cervix, administration of luteolytic agents such as PGF_{2α}, along with cervical dilators, has been recommended to facilitate fetal expulsion (Thangamani, 2023) [19]. In the present doe, PGF_{2α} administration resulted in complete cervical dilation and enhanced uterine contractions, allowing the mummified fetus to descend into the birth canal. However, fetal maldisposition led to dystocia, which was successfully corrected by obstetrical manipulation, adequate lubrication, and gentle manual traction. As no apparent damage to the reproductive tract was observed, the prognosis for subsequent fertility and breeding remains favourable.

Competing Interests : The authors declare no competing interests.

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