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Clinical management of post-parturient complete uterine prolapse in a Thanjavur black non-descriptive goat

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Abstract

A Thanjavur Black Non-Descriptive goat was presented to the Veterinary Clinical Complex with a history of recent parturition and complete uterine prolapse. The prolapsed uterine mass was thoroughly examined and hairs around the vulva, perineum and tail were clipped. The exposed uterus was gently cleansed with 0.10% potassium permanganate solution. Epidural anesthesia was induced by infiltration of 2% lignocaine into the sacro-coccygeal space to prevent straining during correction. Tranexamic acid was administered to control and prevent hemorrhage and $PGF_2\alpha$ diluted in 250 mL of normal saline was given intrauterine after repositioning to prevent internal bleeding. Following adequate restraint with elevation of the hindquarters, the prolapsed uterine mass was carefully repositioned to its normal anatomical location. Post-replacement management such as supportive therapy comprising of intravenous fluids, antibiotics, corticosteroids, oxytocin and anti-inflammatory drugs for two days. In addition, Involon bolus was prescribed once daily for three days. The animal made an uneventful recovery without any postoperative complications.

Key words: *Epidural Anesthesia, post partum doe, total uterine prolapse, Reduction and repositioning,*

Introduction

The post-parturient uterine prolapse is a serious obstetrical condition in which the gravid uterine horn along with the non-gravid horn becomes everted and protrudes through the vulva following expulsion of the fetus. This condition is commonly referred to as "casting of withers" or "casting of calf bed" (Roberts, 1982). The uterine prolapse occurs immediately or within a few hours after parturition when the cervix remains dilated and the uterus lacks normal tone. The condition is considered an emergency because prolonged exposure of the uterus predisposes the animal to contamination, trauma, edema, hemorrhage, shock and even death if timely intervention is not undertaken.

The uterine prolapse has been reported in most of the domestic animal species; however, it occurs more frequently in cattle and ewes whereas goats are comparatively less affected and mares are only rarely affected (Nair *et al.,* 2019). The condition is associated with dystocia, prolonged labour, retained fetal membranes, hypocalcaemia, excessive relaxation of pelvic structures and uterine atony. The exact etiology of uterine prolapse is unclear, however, several predisposing factors have been reported. Higher abdominal straining caused by pain or discomfort following parturition, excessive traction during assisted delivery and the additional weight of retained fetal membranes are considered as important contributing factors. Nutritional and feeding factors such as tympany and consumption of feeds rich in phytoestrogens are also predispose the animals to prolapse by causing relaxation of pelvic musculature and higher intra-abdominal pressure. Sweet clover feeding has associated with uterine prolapse due to excessive abdominal distension and straining (Krishnaveni *et al.,* 2025).

Managemental and environmental conditions also influence the occurrence of uterine prolapse. Animals maintained under confinement systems are reported to be more susceptible than grazing animals because restricted movement weaken the abdominal and uterine musculature which in turn reduce the uterine tone and increase the risk of prolapse (Krishnaveni *et al.,* 2025). In addition, mineral imbalances especially hypocalcaemia impair the

uterine contractions and predispose the uterus to eversion during or after delivery. Multiparous animals and those have experience of difficult calving (dystocia) are also considered at greater risk.

The prolapse occurring more than 24 hours after parturition is relatively uncommon and associated with partial closure of the cervix which in turn makes replacement of the uterus difficult or sometimes impossible (Gupta *et al.,* 2018). The prolonged prolapse leads to severe edema, contamination, tissue necrosis and vascular compromise of the exposed uterus. In severe cases, rupture of uterine or ovarian blood vessels leads to internal hemorrhage and hypovolemic shock. Lacerations of abdominal viscera also occur due to excessive traction or trauma. The clinical signs such as tachycardia, pale mucous membranes, prolonged capillary refill time, weakness and recumbency are indicative of circulatory shock and are associated with a poor prognosis. Therefore, prompt diagnosis and immediate therapeutic management are required to improve the survival and reproductive outcomes in the affected animals.

Case History and Clinical Observation

A multiparous Thanjavur Black non-descript doe with a history of two previous kiddings was presented to the Veterinary College and Research Institute, Small Ruminant Section with a complaint of complete post-parturient uterine prolapse (Figure 1). According to the anamnesis provided by the owner, the animal had undergone full-term gestation and delivered a normal live kid without apparent dystocia six days prior to presentation. The prolapsed uterine mass was first noticed approximately one day before the animal was brought to the clinic. Delayed presentation of uterine prolapse beyond 24 hours postpartum is considered uncommon in small ruminants and is associated with increased edema, contamination and difficulty in replacement due to progressive cervical constriction and tissue swelling (Roberts, 1982; Gupta *et al.,* 2018).

On general clinical examination, the doe appeared dull, depressed and mildly dehydrated. The animal adopted a characteristic arched-back posture suggestive of abdominal discomfort and continuous straining. Vital parameters revealed a rectal temperature of 100.76°F, whereas the visible mucous membranes were pink and moist due to the absence of severe circulatory effect at the time of presentation. Detailed gynecological examination revealed a completely everted and edematous uterine mass protruding through the vulva with prominent caruncles/ cotyledons clearly visible on the exposed endometrial surface. The prolapsed uterus appeared as congested and swollen due to prolonged exposure to the external environment, however, no evidence of severe necrosis or deep laceration was observed.

Before Treatment **After Treatment**

Fig. 1. The uterine prolapse in goat

The postpartum uterine prolapse in goats is considered an obstetrical emergency because prolonged exposure of the uterus predisposes the tissue to contamination, trauma, vascular compromise and secondary infection (Noakes *et al.,* 2019). Edema of the prolapsed mass commonly develops due to venous stasis and continuous straining which in turn further complicates the manual reduction and replacement. Therefore, early clinical intervention is required to prevent the complications such as shock, uterine necrosis, infertility or recurrence of prolapse. The present case represented a delayed postpartum uterine prolapse in a doe with viable uterine tissue and stable systemic condition, thereby providing a favourable prognosis following the appropriate therapeutic management.

Systemic Signs

The animals affected with postpartum uterine prolapse are commonly observed in recumbency due to pain, exhaustion and continuous straining; however, in

some cases they may remain standing with the prolapsed uterus hanging below the vulva up to the level of the hocks. Retention of fetal membranes is associated with uterine prolapse and further increases the weight of the prolapsed mass which in turn aggravate the tissue edema and contamination (Arthur *et al.,* 1989). The exposed uterine mucosa presents as a large, congested, edematous mass with prominent reddish, grape-like caruncles visible on the endometrial surface. Unless the prolapse is of very recent origin, the exposed tissues are commonly contaminated with fecal material, straw, bedding particles, dirt, blood clots and environmental debris which in turn predispose the uterus to infection and tissue necrosis.

As the duration of prolapse increases, venous drainage becomes impaired leads to marked edema, congestion and enlargement of the prolapsed uterus. Arthur et al. (1989) reported that severe edema develops when the prolapse persists for four to six hours or longer which in turn make replacement increasingly difficult. Continuous exposure to the external environment also leads to drying, trauma, ulceration and laceration of the uterine mucosa. In severe or neglected cases, vascular effect progress to ischemia and gangrene of the prolapsed tissue which in turn significantly worsening the prognosis.

In some animals, severe hemorrhage occurs due to rupture of uterine or ovarian blood vessels during eversion of the uterus or as a consequence of excessive straining. Such cases rapidly progress to hypovolemic shock, which is considered as a grave complication of the uterine prolapse. Clinical signs associated with severe hemorrhage and shock such as rapid and weak pulse, tachypnea, irregular respiration, pale mucous membranes, expiratory grunting, marked weakness, recumbency and inability to rise (Thangamani *et al.,* 2018). Animals exhibiting these signs require immediate emergency intervention such as fluid therapy, control of hemorrhage, correction of shock and prompt replacement of the prolapsed uterus to improve survival and reproductive prognosis. Therefore, early diagnosis and timely obstetrical management play an important role to minimize the complications and ensuring successful recovery in affected animals.

Treatment and Discussion

In the present case, the prolapsed uterus was successfully managed with use of a systematic therapeutic and supportive approach aimed at controlling straining, reducing edema, preventing contamination and restoring the normal uterine tone. Epidural anesthesia was achieved with use of lignocaine hydrochloride (0.5 ml) which effectively minimized the tenesmus and facilitated gentle handling and repositioning of the prolapsed uterine mass. Epidural analgesia is considered an important step in the management of uterine prolapse because it reduces abdominal straining and prevents further trauma to the prolapsed tissue during manipulation (Roberts, 1982; Noakes *et al.,* 2019).

Prior to replacement, the prolapsed uterus was thoroughly cleansed with use of diluted potassium permanganate solution to remove adherent dirt, fecal contamination, blood clots and necrotic debris. Proper cleaning and aseptic handling are required to minimize the bacterial contamination and reduce the risk of subsequent uterine infection and metritis. Common salt was applied over the edematous uterine tissue to reduce the swelling through osmotic action which in turn facilitated for easy repositioning of the prolapsed organ without causing additional tissue damage. The hyperosmotic agents such as sugar or common salt are widely recommended in prolapse management for effective reduction of edema and restoration of tissue pliability (Jackson, 2004).

Following adequate reduction of edema, the uterus was gently repositioned manually with care to ensure complete replacement of both uterine horns into the pelvic cavity. No hemorrhagic complications were observed following repositioning due to successful restoration of vascular integrity and adequate hemostasis. Tranexamic acid (10 mg/kg, I/M) was administered to control potential hemorrhage by inhibiting the fibrinolysis whereas the prostaglandin F2α (PGF2α) was diluted in 250 ml of normal saline which was infused intrauterinely after replacement to enhance uterine involution and improve the uterine contractility. Administration of ecbolic agents following replacement is considered beneficial to restore the uterine tone and prevent the recurrence of prolapse (Noakes *et al.,* 2019).

The post-replacement therapy played an important role to ensure the uterine retention and prevent the secondary complications. Oxytocin (10 IU, I/M) was administered immediately after replacement to

stimulate the uterine contractions and promote the rapid involution which in turn reduced the recurrence. Fluid therapy comprising dextrose normal saline and Ringer's lactate (100 ml each, I/V) was provided to maintain the hydration, correct electrolyte imbalance and support circulatory stability. Broad-spectrum antimicrobial therapy with use of ceftriaxone–tazobactam (15 mg/kg, I/M) was administered to prevent systemic and uterine infections as recommended by Singh et al. (2017). Chlorpheniramine maleate (0.5 mg/kg, I/M) was also administered to minimize the inflammatory and allergic reactions associated with tissue trauma and handling.

The intrauterine infusion of metronidazole (100 ml) was performed immediately after repositioning to reduce the risk of uterine infection and metritis. On the second day, intrauterine administration of povidone iodine (10 ml) combined with metronidazole was repeated to provide local antiseptic and antimicrobial action. Such intrauterine therapy is commonly employed in prolapse cases to prevent bacterial colonization and promote uterine healing. Analgesic and anti-inflammatory support was provided with use of meloxicam (0.5 mg/kg, I/M), which in turn helped to reduce the pain, inflammation and stress associated with tissue trauma. Similar therapeutic benefits of meloxicam in obstetrical conditions were reported by Azad et al. (2024). Continued antimicrobial and anti-inflammatory therapy on the following day ensured adequate postoperative care and minimized the risk of secondary complications. Oral supplementation with Involon bolus once daily for three days further supported the uterine involution, metabolic recovery and general health improvement.

Clinically, the animal exhibited marked improvement within 24 hours following treatment. The dullness and depression subsided, posture returned to normal and appetite improved considerably. No recurrence of prolapse, abnormal vaginal discharge or systemic complications was observed during the follow-up period. The successful and uneventful recovery observed in the present case highlights the importance of early clinical intervention, effective epidural analgesia, proper reduction of edema, careful uterine repositioning and comprehensive postoperative therapy in the successful management of complete uterine prolapse in goats.

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