

Uterine Prolapse in a Korean Black Goat

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Abstract : A postpartum total uterine prolapse in a 2-years old Korean black goat was presented. This paper reports the clinical management of the case. The everted uterus was carefully assessed and gross debris were gently removed and disinfected with dilute povidone iodine solution. The prolapsed uterus was replaced with epidural anesthesia and retention suture was placed on the vulva. Broad spectrum antibiotics, calcium gluconate, and supportive therapy were administered. The patient made complete recovery.

Key words : caprine, uterus, prolapse, Korean black goat.

Introduction

Prolapse of the uterus occurs in all animals regardless of species. It is most common in cows and ewes, less frequent in sows, and rarely in does, mares, bitches and queens (10). Uterine prolapse invariably occurs shortly after parturition, when the cervix is dilated. Prolapse of the post gravid uterine horn is an eversion of the uterus turning inside out and the mass of uterus hanging below the hocks. Little is known about the etiology and epidemiology of uterine prolapse in small ruminants (7). Underlying causes such as dystocia, excessive traction to relieve retained fetal membranes, uterine inertia, hypocalcemia, and the lack of exercise have all been implicated as the contributory factors (1). Nevertheless, prepartum vaginal prolapse does not predispose postpartum uterine prolapse (12).

The uterine tissue may be ischemic or necrotic depending on the duration of the prolapse. The prognosis is good when a clean and less traumatized uterus is replaced promptly. There is no tendency of the condition recurring at subsequent parturitions (12). Elevation of the hindquarters of the goat and applying pressure on the exposed uterus can assist replacement of the uterus. Thorough cleaning with an antiseptic solution and lubrication is necessary before reduction (1). The exposed tissue should be washed to have as much of the placenta removed as possible, avoiding trauma to the caruncles and endometrial lining. Returning the tips of the uterine horns to their normal position may be facilitated by uterine lavage, which allows fluid and gravity to assist in the replacement of the tips of the uterine horns if they are not accessible to the operator's hand (11). A caudal epidural anesthesia is useful before replacement of a uterine prolapse as it decreases severe straining and desensitizes the perineum (9). Closure of the vulvar opening for several days may be war-

ranted, as with vaginal prolapse.

Complications tend to develop when laceration, necrosis, and infection are involved, or in cases of delayed treatments. Hemorrhage may occur secondary to uterine prolapse if the uterus or ovarian artery is torn. However, rupturing of uterine blood vessels and hemorrhage are uncommon in goats. Subsequent therapy including oxytocin, systemic antibiotics for 3 to 5 days and tetanus prophylaxis are indicated. In the case of lacerated and severely soiled prolapses, the patient should be closely monitored for metritis or peritonitis. Severe cases may require an amputation of the uterus (12).

Case

A 2-years-old Korean black goat weighing 21 kg was presented for treatment of a prolapsed uterus (Fig 1). The doe is from the research project of laparoscopic-assisted embryo transfer in goats, and it was held in a pen during night to undergo Cesarean section on the next day. She was found in the morning with a healthy newborn kid, but whole of her uterus had prolapsed and required immediate emergency procedures. Mucous membranes of the uterus were hyperemic, and the prolapsed uterus was swollen and contaminated with sawdust. Yet the whole uterus was relatively fresh without any wounds, and the vital of the patient was found to be normal. By estimating appearance of the newborn kid and the condition of prolapsed uterus, uterine prolapse of the doe was presumed to have occurred within 1 to 2 hours.

The prolapsed uterus was gently washed with warm diluted 0.5% povidone iodine and kept on a clean tray prior to its replacement (Fig 2). The doe was then placed on standing posture and the operator lifted the uterus to the level of the vulva and pushed inwards through the vagina in an slightly downward angle. The pushed uterus had prolapsed twice again due to a strong abdominal straining. Two mL of 2% lidocaine was injected epidurally and the doe was placed with its head downwards on an operating table tilted 30°. Obstetrical lubri-

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Fig 1. Postpartum total uterine prolapse in a Korean black goat.



Fig 2. Disinfecting prolapsed uterus with diluted povidone iodine solution.

cant was then applied to the entire uterus. On the third attempt the uterus was thoroughly replaced into the abdomen through the vagina. About 5 L of warm saline was infused into the uterus to re-extend the tips of the uterine horns, and retention suture was placed on the vulvar opening.

Unfortunately, as the blood samples were contaminated, serum chemistry and hormonal profiles were not evaluated in



Fig 3. One day after treatment.

this case. Twenty mL of 20% calcium gluconate and 10 IU of oxytocin were administered IV and IM respectively and supportive therapy was applied. Penicillin G procaine (100,000 IU/kg) and streptomycin (200 mg/kg) were administered for 5 days. The doe made full recovery without any complications (Fig 3).

Discussion

Most cases of uterine prolapse pertain to domesticated ruminants and livestock rather than free-living ruminants (7). Uterine prolapse is most likely caused by dystocia and infrequently occurs after parturition in goats; however, the exact etiology remains unclear (7). The entire uterus is everted with the placenta attached during the third stage of labor when the fetus has been expelled and the fetal cotyledons have separated from the maternal caruncles (4).

Rapid assessment and treatments are required to sustain the life of prolapsed animals. The uterus should be replaced so that the tips of the uterine horns are completely returned to their normal positions (1). Clinical management of the animal with uterine prolapse should be applied on examining signs of toxemia by vascular compromise, increased pulse and respiratory rate and congested mucus membranes. High vital parameters may be witnessed when the animal is suspected of metritis caused by secondary bacterial infection (10). The mucosal surface of the prolapsed uterus is usually necrotic, dry, and friable (7).

Careful removal of superficial contamination with warm dilute antiseptic solution should be done primarily. Combined caudal epidural injection of xylazine and lignocaine (0.07 mg/kg and 0.5 mg/kg respectively) at sacrococcygeal region provides effective analgesia eliminating forceful abdominal

straining behavior followed by replacement and retention of uterine prolapse (8). The prolapsed uterus can be replaced either in standing or recumbent position. The recovery rate in standing position was significantly higher than in other postures. Recovery rate was the lowest in sternal recumbency, lying sideways or in sitting posture. The rear-end-raising posture also had a significantly higher recovery rate compared to lying (3).

If the uterus is completely and fully replaced all the way to the tips of the uterine horns, re-prolapse is unlikely to occur. Once the uterus is in its normal position, oxytocin 10 IU intramuscularly should be administered to increase uterine tone. Treatment with injectable broad spectrum antibiotics for 3 to 5 days and tetanus prophylaxis is responsible for the lowering of the vital parameters to the normal values (12). When signs of hypocalcaemia are noticed such patients should be given calcium borogluconate. Dexamethasone is normally given to reduce the uterine swelling (7).

The serum of animals with prolapsed uterus has significantly lower calcium concentration and higher phosphorus concentration (6). It has also been reported that most animals with mild hypocalcemia and some degree of dystocia are associated with uterine prolapse. Hypocalcemia is especially found to be the result of the uterine prolapse rather than its cause (6). In the abovementioned case, immediate intravenous injection of 20 mL of 20% calcium gluconate was applied and therefore serum chemistry was not evaluated. Evaluation of serum chemistry and hormonal profiles is intended to examine edema, inflammation, and changes in leukocytes level. Affected animals may show an increase in average progesterone and 17β -estradiol concentration (2).

In this case, the prompt detection of the affected doe and rapid treatment were the two key factors of the complete recovery from uterine prolapse and good prognosis. This case report is the first report on the postpartum uterine prolapse in Korean black goats.

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References

1. Biddle D, Macintire DK. Obstetrical emergencies. *Clin Tech Small Anim Pract* 2000; 15: 88-93.
2. Ennen S, Kloss S, Scheiner-Bobis G, Failing K, Wehrend A. Histological, hormonal and biomolecular analysis of the pathogenesis of ovine Prolapsus vaginae ante partum. *Theriogenology* 2011; 75: 212-219.
3. Ishii M, Aoki T, Yamakawa K, Uyama T, El-Khodery S, Matsui M, Miyake Y. Uterine prolapse in cows: Effect of raising the rear and on the clinical outcomes and reproductive performance. *Vet Med* 2010; 55: 113-118.
4. Noakes DE, Parkinson TJ, England GCW. Post parturient prolapse of the uterus. In: *Veterinary Reproduction and Obstetrics*. 9th ed. London: Elsevier Saunders. 2009: 319-325.
5. Rahim AT, Arthur GH. Obstetrical conditions in goats. *Cornell Vet* 1982; 72: 279-284.
6. Richardson GF, Klemmer AD, Knudsen DB. Observation on uterine prolapse in beef cattle. *Can Vet J* 1981; 22: 189-191.
7. Robling KA, Jenks JA, Holler L. Two cases of uterine prolapse in free-ranging deer in South Dakota. *J Wildl Dis* 2012; 48: 806-808.
8. Scott PR, Sargison ND, Penny CD, Strachan WD. The use of combined xylazine and lignocaine epidural injection in ewes with vaginal or uterine prolapses. *Theriogenology* 1995; 43: 1175-1178.
9. Scott PR and Gessert ME. Management of post-partum cervical uterine or rectal prolapses in ewes using caudal epidural xylazine and lignocaine injection. *Vet J* 1997; 153: 115-116.
10. Wachida N and Kisani AI. Uterine prolapse in a doe goat: A case report. *Int J Anim Vet Adv* 2011; 3: 135-137.
11. Youngquist RS, Threlfall WR. Surgical correction of abnormalities of genital organs of cows. In: *Current Therapy in Large Animal Theriogenology*. 2nd ed. St Louis: Elsevier Saunders. 2007; 463-472.
12. Youngquist RS, Threlfall WR. Periparturient infections and structural abnormalities. In: *Current Therapy in Large Animal Theriogenology*. 2nd ed. St Louis: Elsevier Saunders. 2007; 572-574.