Case Report

Obstetrical Management of Partial Uterine Prolapse in a Mare

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ABSTRACT

Uterine Prolapse is termed as the eversion of the uterus or casting of ‘’wethers” or casting of calf bed. It is a common complication of the third stage of labor and more common in pleuripara than primipara. Uterine prolapse is common in cows and ewes, but rarely seen in mares, dogs, and cats. A six-year-old female pony was brought to the emergency unit at the Obstetrics Unit of Veterinary Clinical Complex, Veterinary College and Research Institute Orathanadu, with a history of aborted pre-term (eight months) a day before and the mass hanging through the vulva. On clinical examination, the animal was dull and in a standing posture, the congested mucous membrane with tachycardia was noticed. Further examination of the mass revealed severe congestion and edema of the prolapsed uterus with no evidence of fetal membrane remnants. A vaginal examination explored constricted cervix. Blood samples were collected for hematology and serum biochemistry. Upon epidural anesthesia, the prolapsed mass was washed with potassium permanganate solution and then a hypertonic solution. After 10 minutes, the mass was washed with warm normal saline. Using Cetrimide cream as a lubricant and an antiseptic, the mass was reduced and repositioned. No Buhner’s suture was applied. Mare has received 40 IU of oxytocin for the involution process to begin. Systemic antibiotics and anti-inflammatory drugs were administered for five days. Uterine lavage was done for three days with normal saline and povidone-iodine to aid in uterine clearance. On consequent days, the mare had improved and the cervix was closed with no discharge. The mare had an uneventful recovery.

Keywords: Abortion, Epidural anesthesia, Mare, Prolapse, Straining

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1. Case History

Prolapse of the uterus is a condition, in which the uterus becomes everted and protrudes through the vulva. It can be visually diagnosed by the red, corrugated soft mass hanging from the vagina (Farjanikish et al., 2016). The everted mass of the uterus is endowed with rich vascularity. The uterus of the mare is T-shaped and attached to the dorsal body wall by the broad ligament, keeping it comparatively well-positioned than other farm animals (such as cattle and buffaloes); hence, uterine prolapse is rarer in horses. However, either one horn or a major portion of the uterine body may prolapse immediately postpartum or several days later. Abortion, dystocia, retained placenta, any conditions that lead to straining (tenesmus), such as vaginal trauma, oxytocin overdose, the lack of uterine involution due to atony, and hypocalcemia are the predisposing factors of uterine prolapse in mares (Perkins et al., 1994). Sometimes, twin pregnancies can also be the cause of prolapse (Alamaary et al., 2020). Uterine prolapse can be complicated by rupture of uterine vessels (Finan & McKinnon, 2015), lacerations, septicemia, ischemia of viscera and endotoxemia (Hewes et al., 2011), endometritis, laminitis, peritonitis, or development of tetanus. The present paper described the rare incidence of partial uterine prolapse in a pony and its obstetrical management.

2. Clinical Presentation

A six-year-old pluriparous pony on July 10, 2022, at 04:30 PM was brought to the Obstetrical Unit of the Veterinary Clinical Complex, Veterinary College and Research Institute, Tamil Nadu Veterinary and Animal Sciences University, Orathanadu, with a mass hanging from the vagina. The mare had aborted the fetus during the eighth month of its gestation, the uterus had prolapsed a few hours later, a day before arrival at the hospital. The animal was administered with an anti-tetanus injection by a local veterinarian before arrival. On clinical examination, the animal was standing upright ambulatory with a slightly dull mentation. The tachycardia was noticed (heart rate: 80 bpm) and the mucous membranes were bilaterally severely congested (Figure 1) with a rectal temperature of 100.6°F. Upon examination of the prolapsed mass, the tissues were vital; however, there was severe congestion, edema, and multifocal grey and yellow areas, with a small amount of bleeding (Figure 2). No evidence of fetal membrane attachments was observed. The side closer to the right horn had completely prolapsed while the other side was incomplete. Upon vaginal examination, constriction of the cervical region was noticed. Whole blood and serum samples were collected and subjected to hematological and biochemical estimation (Ono et al., 2019).

3. Diagnostic Testing

Wet film examination was negative for blood protozoans. Hematological examination revealed a normal physiological range (hemoglobin: 14 g/dL, erythrocytes: 11.6×10^6 mm^3, leucocytes: 4.6×10^3 mm^3, PCV: 45%, neutrophils: 56%, lymphocytes: 32%, band cells: 11%, and monocytes: 1%). Among the serological values, a mild increase in the blood urea nitrogen (69 mg/dL), a slight decrease in serum calcium levels (calcium: 9.2 mg/dL), and an increase in the serum phosphorous levels (6.92 mg/dL) were observed but the rest of the values were in the normal physiological range (creatinine: 1.52 mg/dL, alanine transaminase (serum glutamic-pyruvic transaminase (SGPT)): 1 U/L, ALP: 1.61 U/L, ADT (SGOT): 1 U/L, total protein: 6 g/dL, and albumin: 3.41 g/dL) (Ono et al., 2019).

4. Assessments

Caudal epidural anesthesia was performed with 2% lignocaine HCL (4 mL) at the inter-coccygeal space using a 20 G needle (Figure 3). Tail bandaging was performed to prevent hair contamination during the interventional procedure. The animal was stabilized with Ringer's lactate (1 L) and 0.9% isotonic normal saline (1 L). The prolapsed mass of the uterus was washed and debris was cleaned with 0.1% $KMnO_4$ solution. The hypertonic salt solution was applied to the mass directly in order to reduce inflammation (Yaliwal et al., 2020) (Figure 4). Within a few minutes, the mass was more pliable and manageable, which indicated a reduction in edema. The prolapsed uterus was lubricated with Cetrimide cream (Kayvee Aeropharm Pvt. Ltd India) and it was reduced. As it was a partial uterine prolapse, the mass was repositioned by inverting the right ovarian bursal region through the invagination followed by the entire mass. The uterus was then flooded with 2 L of diluted povidone iodine (Stedman Pharmaceuticals Pvt Ltd, India) at the rate of 2% to ensure no invaginations would recur after the repositioning. Further vaginal speculum examination was performed to ensure the cervix was back in position (Figures 5 and 6). The intrauterine fluids were siphoned after 30 minutes. Because no straining was evident, Buhner's sutures were not applied as there were no signs of prolapse (Cetin & Gurgoze, 2009).

Figure 1. Congested mucous membranes

Figure 2. Prolapsed mass shows various multifocal yellowish and greyish areas, along with edema and congestion

Figure 3. Epidural anesthesia at inter-coccygeal space using 2% lignocaine

Figure 4. Application of salt to reduce edema

Figure 5. Cervical os 0 h after prolapse reduction

Figure 6. Cervical involution after 3 h of reduction: vaginal speculum examination

Figure 7. Uneventful recovery

The animal was administered with flunixin meglumine (1.1 mg/kg intravenously), oxytocin (40 IU intramuscularly), and a combination of streptomycin (20 mg/kg) and procaine penicillin (22,000 units/kg). The animal exhibited urination and mild straining after oxytocin administration; however, the uterus did not prolapse again. On a subsequent day, all vitals were normal. The congestion of the mucous membranes was reduced. Fluids were administered again, along with non-steroidal anti-inflammatory drugs (NSAID) and antibiotics. Intrauterine antiseptic douching using a diluted 5% povidone-iodine solution was performed. Upon vaginal speculum examination, cervical involution was appreciable. The antibiotic and NSAID were continued for five days and the mare had an uneventful recovery (Figure 7).

Uterine prolapse in mares has to be addressed more prudently than in cattle as it is more fragile and softer (Chisholm, 1981). Moreover, it can be replaced with no trouble than a bovine uterine prolapse due to the nature of the uterus with the absence of cotyledons (Parkinson et al., 2019). A deficiency of calcium has been reported to develop secondary uterine inertia in debilitating animals resulting in uterine prolapse. In the present case, mild hypocalcemia owing to the start of lactation might be the reason for the uterine atony and hence resulted in partial prolapse of the gravid horn. Using oxytocin helps in maintaining contractibility and tonicity, leading to increasing the involution of the uterus, which further helps in preventing the recurrence (Causey et al., 2007; Farjanikish et al., 2016). In contrast to bovine, Buhner's sutures or stay sutures in equine are not required, as the vulval suture may result in distorting the vulval anatomical contour and predispose the mare for pneumovagina.

Although the prolapse of the uterus is uncommon in mares, it has to be addressed as an emergency due to the possibility of systemic inflammatory response syndrome (SIRS). It is an emergency condition, which is clinically similar to fever, tachycardia, tachypnea, leucopenia, and increased immature polymorph nuclear cells. It can be synergistic with infections and sepsis encounters (Bone et al., 1992). Tumor necrosis factor and interleukins are the major inflammatory mediators resulting in the activation of platelet-activating factor, leukotrienes, nitric oxide, and prostaglandin E_2 and the activation of neutrophils consequently leading to inflammation, tissue obliteration, and loss of function. Hence, the high level of inflammation may lead to an increased risk of survivability (Hewes et al., 2011). Uterine lavage with an antiseptic solution may aid in cleansing the pathogens and promote tissue regeneration. Strong, undiluted solutions or alcohol-containing solutions should not be used.

The successful outcome in the treatment of uterine prolapse depends on the repositioning of the uterus and straining management. Lubricants, like Cetrimide cream help in easy repositioning and also act as a smoothening agent. Flooding the uterus with warm saline may help to ensure complete replace-

ment of the uterine horns. The straining can be effectively controlled with the use of epidural anesthesia, sedatives, or general anesthesia depending on the nature of the animal's demand. Small doses of oxytocin can be administered to begin with the involution process and intrauterine antibiotics can be given as douches or boluses. Systemic broad-spectrum antibiotics along with tetanus prophylaxis are essential in preventing the infection and aid in uneventful recovery.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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Authors' contributions

Methodology: Sengodan Raja, Anand Kuniyil Athira, Edara Silendra Kumar, Pandiyan Bhuvaneshwari and Ravikumar Deepika Sri; Writing–original draft, review and editing: Sengodan Raja, Anand Kuniyil Athira, Soundarapandian Satheshkumar, Subramaniyan Prakash and Narayanasamy Arunmozhi.

Conflict of interest

The authors declared that there is no conflict of interest.

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