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Dystocia Due to Secondary Partial Uterine Inertia in a New Zealand White Rabbit

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

A one-year-old Doe weighing 1.2 kg was brought to Teaching Veterinary Clinical Complex, FVAS, BHU-Mirzapur, with a history of giving birth to three dead bunnies 3 days before and after that not show any signs of kindling. Vulvul lips were swollen, congested and edematous. The Perineal area was smeared with uterine discharge. Doe had Inappetence dehydration for 3 days. Doe was previously treated with inj. oxytocin @ 1 to 3 IU I/M and inj. Epidosin @ 8mg/ kg I/M along with calcium gluconate @ 0.25 ml/kg slow I/V before 24 hrs. Abdominal palpation revealed the presence

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of fetal mass. Lateral abdominal radiograph showed the presence of one fetus's skeleton located in the pelvic cavity. Based on the history and obstetrical examination it was diagnosed as a case of dystocia due to secondary partial uterine inertia. A male dead bunny was relived through exploratory laparotomy under general anaesthesia (premeditated with inj. xylazine 5 mg/kg body weight and induction with isoflurane 3-5%). Doe had an uneventful recovery following exploratory laparotomy with proper postoperative care. Dystocia due to secondary partial uterine inertia is a rare case in rabbits and it can be managed through exploratory laparotomy with proper post-operative care.

Keywords: Rabbit; uterine inertia; exploratory laparotomy; radio graphical examination.

1. INTRODUCTION

Dystocia is defined as the inability to expel the fetus from the uterus even after the completion of its full-term gestation and it is mainly due to maternal or fetal causes. Maternal causes include pelvic abnormality or deformity, reproductive tract abnormality or uterine inertia [1]. Fetal causes of dystocia include malpresentation, malposition or malposture, oversized fetus or dead fetus [2]. Dystocia due to maternal cause is more common than the fetal cause. Further, uterine inertia is one of the most common causes of dystocia in rabbits [3]. Uterine inertia is characterized as insufficient uterine contractions to expel a normal fetus from a normal birth canal [4]. In the present case report, dystocia was due to secondary partial uterine inertia and it was corrected surgically through exploratory laparotomy. Uterine inertia is the incapability of normal physiological uterine musculature to contract during labor due to exhaustion or fatigue of uterine muscles. The uterine inertia may be classified into primary or secondary uterine inertia [5,6]. Further, primary uterine inertia is classified as partial or complete. Complete primary uterine inertia in which the animal fails to initiate the second stage of labor so no fetuses are delivered. In Partial primary uterine there is an initiation of normal labor followed by start delivery of puppies but failing to deliver all the fetuses. Secondary partial uterine inertia caused by exhaustion or fatigue of uterine muscles due to the obstruction of birth passage [7,8,9]. Primary uterine inertia may be associated with hormone deficiency (oxytocin), overloading of fetuses leading to overstretching the uterus, obesity, lack of exercise, hypocalcemia, hypoglycemia and uterine disease. Secondary uterine inertia is the exhaustion of uterine musculature after prolonged dystocia [4]. Cesarean section is often necessary for Doe, if they unable to deliver through per-vaginum and therefore can imperil the life of the dam [10]. In this present study, doe was successfully corrected through exploratory laparotomy.

2. CASE HISTORY AND OBSERVATIONS

A one year old Doe weighing 1.2 kg brought to Teaching Veterinary Clinical Complex, FVAS-BHU-Mirzapur, with the history of given birth 3 days before with three dead fetuses normally. Vulvul lips were swollen, congested and edematous. Perineal area was smeared with uterine discharge. Doe had inappetence dehydration since from 3 days. Animal was previously treated with inj. oxytocin @ 1 to 3 IU I/M and inj. Epidosin @ 8mg/ kg I/M along with calcium gluconate @ 0.25 ml/kg slow I/V before 24 hrs. Vulvul lips were swollen, congested and edematous. Upon abdominal palpation revealed presence of fetal mass. Lateral abdominal radiograph showed the presence of one fetus's skeleton which is located in the pelvic cavity (Fig. 1). Based on the history and obstetrical examination, the present case was diagnosed as dystocia due to secondary partial uterine inertia. Due to narrow passage of birth canal, the fetus extraction was not possible with mutational operations through per vaginally.

3. MATERIALS AND METHODS

The animal was prepared for exploratory laparotomy**.** Surgical site is prepared at the mid ventral area of diameter 10 cm × 8 cm shaved and was scrubbed with 7.5% povidone-iodine solution. The animal was premeditated with inj. xylazine 5 mg/kg body weight intramuscularly, and the heart rate was observed. Then animal was shifted to the operation theater and on dorso ventral position anaesthesia was induced with diazepam @ 0.5 mg/kg.body weight. After the onset of a good plan of anaesthesia, with adequate muscle relaxation, isoflurane was reduced to 2 - 3% maintenance dose. Other parameters like heart rate and respiration are monitored throughout the operative procedure. A

3 to 5cm caudal midline incision was made on the abdomen through linea alba. The uterus was identified and exteriorized by separating the abdominal muscles and peritoneum. A small incision made on uterus followed by a male dead fetus was removed. The uterus was sutured with chromic catgut (3-0) by inverted suture pattern of Cushing followed by lambart pattern. Abdominal muscles and peritoneum sutured with truglyde (2-0) apposition pattern of suture with simple interruption. Finally, skin was sutured using polyamide (4-0) by an interrupted suture pattern. Post operative medication was given by ceftriaxone @ 60mg/kg I/M, inj. Anistamine @ 1mg/kg I/M, and inj. Meloxicam @ 0.2 mg/kg I/M for 3 days. By taking proper postoperative care and management, rabbit was completely recovered uneventfully.

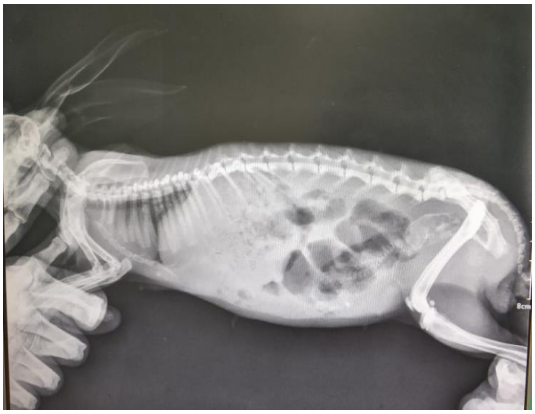

Fig. 1. lateral abdominal view of radiograph showing fetal skeleton in pelvic cavity

Fig. 2. Swollen, congested and edematous vulval lips of a dam

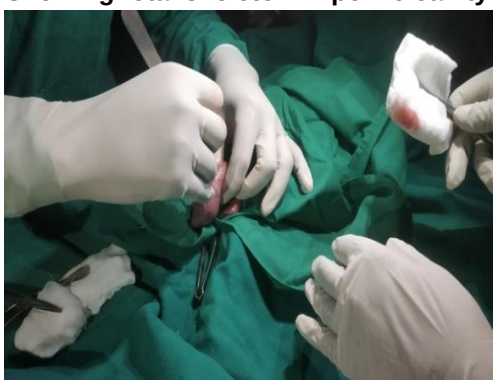

Fig. 3. Exteriorization of the uterus

Fig. 4. Sutured uterus after removal of the fetus

Fig. 5. Suturing of abdominal muscles

Fig. 6. Removed dead fetus by exploratory laparotomy

4. RESULTS AND DISCUSSION

Dystocia is the inability to expel the fetus from the uterus during parturition and may be due to maternal or fetal complications preventing the normal delivery. The female rabbit reproductive tract is unique as it lacks a uterine body and each uterine horn has its own cervix which opens directly into the vagina. In rabbits, dystocia is not a common cause because normal delivery is typically completed within 30 minutes after the onset of labor [3]. Maternal abnormalities include pelvic, vaginal or uterine abnormalities such as small pelvic size, narrow pelvic canal and uterine inertia or may be due to obesity, malnutrition or hereditary cause [1]. Fetal causes include malpresentation, malposition or malposture, oversize, fetal death or fetal monster. In present case study, three dead bunnies were normally expelled through per vaginally and one bunny remained inside the uterus due to secondary partial uterine inertia. The animal was treated with oxytocin and epidosin. Oxytocin promotes the influx of calcium into the endoplasmic reticulum of myometrial cells, which in turn increases the frequency and strength of uterine contractions, epidosin is a locally acting smooth muscle relaxant that helps in cervical dilatation. In rabbits, doses of 1 to 3 units of oxytocin can be administered intramuscularly to facilitate the uterine contraction. Calcium gluconate may also be used as an uterotonic agent in combination with oxytocin. However, if no response of calcium gluconate along with oxytocin therapy, it may be due to dead fetus in the uterus. This response was observed in the present study. Dystocia is usually uncommon in rabbits, but sometimes it can occur due to maternal or fetal abnormalities. In order to prevent further complication, explorative laparotomy is indicated under strict aseptic technique. Better postoperative care, effective antibiotic and analgesia are essential to prevent further postoperative complications.

5. CONCLUSION

Dystocia due to partial secondary uterine inertia in rabbit is a rare obstetrical condition. This condition can be managed by performing exploratory laparotomy with better recovery without any complications. This case report may be helpful for field veterinarians to understand the operative procedure of exploratory laparotomy rabbits with secondary partial uterine inertia.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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