Short Communication

DOI: 10.48165/ijar.2023.44.01.14

The Indian Journal of Animal Reproduction

The official journal of the Indian Society for Study of Animal Reproduction

Year 2023, Volume-44, Issue-1 (June)

ACS Publisher
www.acspublisher.com

ISSN 0970-2997 (Print)

ISSN 2583-7583 (Online)

Induction of Parturition using Mifepristone and Misoprostol in Bitch with Single Pup Syndrome

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ABSTRACT

Single puppy syndrome is common in older bitch. It occurs mostly due to the death of embryos during early gestation and resorption before mineralization. A two-year-old Labrador bitch in her first parity was presented to the Veterinary Clinical Complex, Bihar Veterinary College, BASU, Patna with the history of breeding approximately 72 days ago. A lateral abdominal radiograph revealed single fully-grown fetus with anterior presentation in uterus. The bitch was treated with mifepristone and misoprostol for three days. After three days of treatment, bitch delivered a dead fetus and recovered uneventfully.

***Keywords*:** Mifepristone, misoprostol, radiograph, Single puppy syndrome.

How to cite: Kumar, K., Sengupta, D., Sheetal, S. K., & Azad, C. S. (2023). Induction of Parturition using Mifepristone and Misoprostol in Bitch with Single Pup Syndrome.
The Indian Journal of Animal Reproduction, 44(1), 69–71. 10.48165/ijar.2023.44.01.14

INTRODUCTION

Dogs are polytocous animals with average litter size of 5.4 (range, 1-18) (Borge *et al.,* 2011). However, single foetus pregnancy is also observed, which is commonly known as single pup syndrome (Jackson, 2004). Single puppy syndrome is caused by a number of etiological reasons viz. breeding of older animals, death of embryos during early gestation and embryo resorption before mineralization (Pitroda *et al.,* 2019). In single pup syndrome, the foetus may not produce enough cortisol to stimulate endometrial $PGF_{2\alpha}$ release, which causes luteal regression and whelping (Jayakumar *et al.,* 2017). Once the pregnancy advances, the fetus requires more nutritional support than the placenta can provide, often resulting in foetal death (Jayakumar *et al.,* 2017). When mifepristone alone is administered to induce parturition with single pup, it causes incomplete abortion (Jayakumar *et al.,* 2017). Mifepristone acts as progesterone receptor antagonist developed for human use and is not marketed for veterinary use. Administration

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Received 27-05-2023; Accepted 26-06-2023
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on day 32 of pregnancy in bitches causes termination of pregnancy through resorption with no negative effects (Chaudhari *et al.,* 2020). Intravaginal misoprostol administration causes abortion in pregnant bitches effectively (Cetin *et al.,* 2010).

CASE HISTORY AND OBSERVATIONS

A two year old Labrador bitch in first parity was presented to the Veterinary Clinical Complex, Bihar Veterinary College, BASU, Patna with the history of breeding approximately 72 days back and failure to deliver on the expected day of whelping. Clinical examination revealed restlessness and presence of greenish discharge from vulva. A lateral abdominal radiography was performed, which confirmed the presence of single fully-grown fetus with anterior presentation (Fig. 1). The case was diagnosed as dystocia due to single pup syndrome.

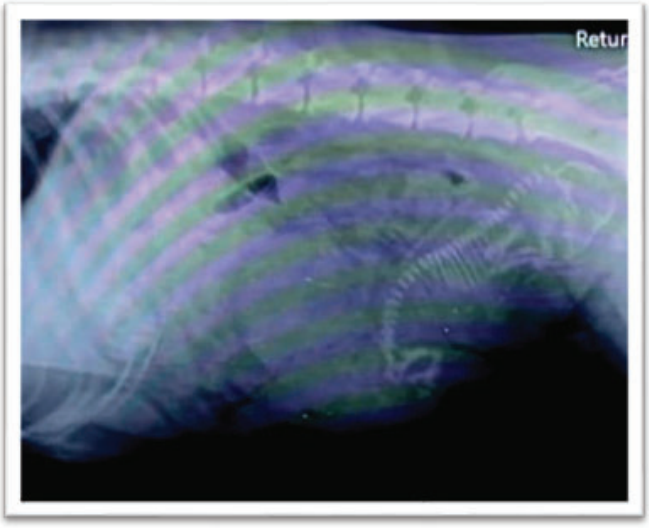

Fig. 1. Lateral abdominal radiograph showing single pup.

TREATMENT AND DISCUSSION

The parturition was induced by administering mifepristone @ 5 mg/kg body weight orally twice a day at 12 hours interval followed by misoprostol @ 10 µg/kg body weight intra vaginally 12 hours after second dose of mifepristone. Three days following the start of treatment, bitch delivered one dead fetus (Fig 2). After whelping, animal was treated with dextrose normal saline, antibiotics and antacid and polybion syrup for three days.

It has been observed that parturition starts within 1-2 hours after the greenish black discharges passes from vulva following the separation of placenta (Johnston *et al.,* 2001). In present study, though greenish discharges were noticed from the vulva, the bitch failed to deliver the fetus resulting in dystocia. It may be sue to the single fetus, which may not be sufficient to initiate parturition resulting in extended gestation (Smith, 2007). In present study, mifepristone along with misoprostol causes cervical ripening and induction of parturition (Tang *et al.,* 2007).

Fig. 2. Dead fetus delivered after treatment

CONCLUSIONS

The present study reported a case of single puppy syndrome and its management in a bitch using a combination therapy of mifepristone and misoprostol.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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