SHORT COMMUNICATION

Termination of Pregnancy in Mismated Bitches using Cloprostenol and Cabergoline

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Abstract

Bitches (n=6) having unwanted pregnancy were subjected to termination using combination of cloprostenol and cabergoline after scanning using ultrasound on day 30-35 post-mating. The bitches were treated with a combination of Inj. Cloprostenol (@ 2 µg/kg b. wt., s/c) and Tab. Cabergoline (@ 5 µg/kg b. wt., orally) once a day, for 3 to 4 consecutive days, and were observed for onset and completion of abortion. All the bitches aborted safely with 3 to 4 treatments with a litter size of 2 to 7 puppies. The mean induction time for abortion was 81.38±3.88 hrs and the mean total duration of whelping was 13.17±2.95 hrs, with milder side effects, *viz.,* crying, vomiting, anorexia and tachypnea without future complications. An ultrasonographic scan was made in each of the bitch after termination of pregnancy and again on day 70 to 100 post-treatment to rule out the retained fetal pups and complications like pyometra or maceration, if any, respectively. None of the bitches had retained pup and had no any complication during the follow up period. The mean values of haemoglobin, WBCs and RBCs counts between pre- and post-treatment (on day 0 and 7/8) periods were also similar in bitches. The combination of Inj. Cloprostenol) and Tab. Cabergoline terminated the unwanted canine pregnancies after 30 to 35 days post-mating within 3 to 4 days, with milder side effects amenable to medications.

Keywords: Bitch, Cloprostenol, Cabergoline, Misalliance, Termination of pregnancy, Side effects.

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Introduction

Reproductive cycle of bitch is different from farm animals and the estrus phase of bitch is quite long. Due to the promiscuous behavior of bitches during their heat period, sometime unintended mating takes place. Bitches with misalliance are required to be treated as early as possible to prevent the unwanted pregnancy, but sometimes mis-mating takes place out of the owner's knowledge or they take the bitch too late to the veterinarian for prevention of conception. In such cases termination of established pregnancy is the only option to deal with the problem (Ramagnoli, 2017; Thangamani *et al.,* 2018).

Different treatment protocols, *viz.*, $PGF_2\alpha$ and its analogues, dopamine agonists, combination of prostaglandins and dopamine agonists, antiprogestin therapy etc. have been attempted by the pet clinicians for termination of unwanted pregnancies in bitches with varying success and side effects (Reddy *et al.,* 2010; Davidson, 2013; Thangamani *et al.,* 2018). However, only a few of these drugs are widely marketed or approved for use in dogs (Abhilash *et al*., 2012). In veterinary hospitals and private pet clinics, such cases are frequently presented for the treatment. Hence, this study was carried out to evaluate the efficacy of combination of cloprostenol and cabergoline in termination of canine pregnancy at 30-35 days post-mating.

Materials and Methods

Six bitches having a history of unwanted breeding before 5 days or more were registered for termination of pregnancy at 30 to 35 days of gestation after confirmation of established pregnancy by ultrasound scanning (Plate 1). All the bitches

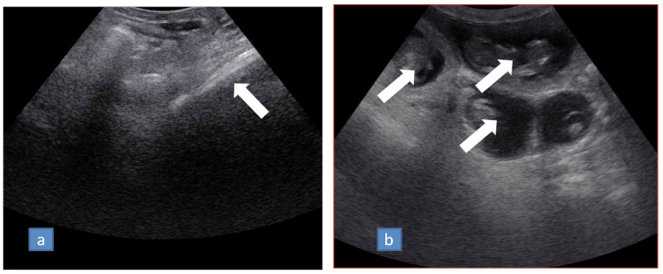

Plate 1: Ultra sonogram showing (a) empty uterus at day 30-35 post-mating and (b) fetal pups in gravid uterus at day 30-35 post-mating

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were treated first with Inj. Atropine sulphate @ 0.02 mg/kg, s/c, 20 minutes before cloprostenol injection to minimize the likely side effects of later like excessive salivation and emesis. Thereafter, all the bitches were subjected to the treatment with a combination of Inj. Cloprostenol @ 2 µg/kg b. wt., s/c, and Tab. Cabergoline @ 5 µg/kg b. wt., orally, once a day, consecutively for 3 to 5 days, depending upon the response of bitches with onset of abortion. An ultrasound examination was also carried out after termination of pregnancy in each bitch to rule out retained fetal pups.

All the bitches were followed daily for at least 30 minutes post-treatment for side effects of $PGF_2\alpha$, if any (vomiting, transient diarrhoea, abdominal straining etc.), throughout the treatment period. The blood samples were collected for haematology on day '0' (day of 1st treatment) and 7/8th day post-treatment to assess their health status. The outcome of treatment protocol and side effects, if any, were recorded and analyzed. An ultrasound scan was carried out during the period from 70 to 100 days post-treatment to rule out complication like pyometra/maceration, if any.

Figure 1: Fetal pups expelled out by gravid bitches

Results and Discussion

Effect of Cloprostenol and Cabergoline on Pregnancy

All the bitches responded to the treatment with a termination of pregnancy with 3 to 4 treatments and none required 5th dosing. Among the six registered bitches, two bitches aborted fetuses after 3rd dose and four bitches required 4th dose for expulsion of fetuses (Fig. 1). The total number of pups expelled out varied from 2 to 7. The mean total time required for onset of abortion from the very first dose was 81.38±3.88 hrs with a range of 70 to 94 hrs. The mean total duration required for completion of expulsion of fetal pups recorded was 13.17±2.95 hrs with a range of 8 to 24 hrs.

The present findings corroborated with the observations of Onclin and Verstegen (1999) and Reddy *et al.* (2010), who found the combination of Inj. Cloprostenol and Tab. Cabergoline as an effective method for inducing termination of pregnancy as early as day 25 after mismating in the bitches without any side effects. Davidson (2013) also gave supportive views to present study. Further, the present findings supported earlier views of Romagnoli (2017) and Thangamani *et al.* (2018), who found that a combination treatment of cabergoline and prostaglandins starting at day 30 of pregnancy to be effective in inducing abortion in bitches. Cabergoline produced no side effects at pharmacological dose. Use of prostaglandin alone has also been reported by Romagnoli *et al.* (1996) and Sanchez and Arias (2018) with variable results for successful termination of pregnancy with a considerable degree of side effects like panting, salivation, primarily emesis and loose stools.

Effects of Cloprostenol and Cabergoline on Health Status

The bitches treated for termination of pregnancy using a combination of cloprostenol and cabergoline were closely monitored for their side effects. The bitches covered under treatment protocol evinced side effects like vomiting (n=1), mild anorexia (n=4), crying (n=3) and tachypnea (n=1). These bitches were managed to provide relief from immediate side effects using symptomatic treatments. None of the bitches had any complaint post-abortion during their follow up till 70 to 100 days post-treatment and on ultrasound scanning between days 70 and 100 there was no any complication like pyometra or maceration detected, suggesting safety of therapeutic approach used. The pre- and post-treatment mean haemoglobin, WBCs, and RBCs values were also within the normal physiological limits and varied non-significantly, indicating that cloprostenol and cabergoline had no adverse effect on the health status of bitches (Table 1).

It was concluded that a combination of cloprostenol and cabergoline can effectively terminate the unwanted canine

Table 1: Mean (±SE) haemoglobin, WBCs, and RBCs counts in bitches pre- and post-treatment with combination of cloprostenol and cabergoline

Days of Blood Collection	*Blood Parameters (n=6)*		
	Haemoglobin (g/dL)	*WBCs ($x10^3$/µL)*	*RBCs ($x10^6$/µL)*
Pre-treatment (day 0)	13.78±0.44	9.15±0.41	6.38±0.16
Post-treatment (day 7/8)	13.82±0.39	9.42±0.56	6.33±0.19
'P' value	0.95	0.70	0.84

None of the parameter differed statistically between days ($P > 0.05$).
Day 0= Day of 1st Coprostenol injection; Day 7/8= 7/8th Day after 1st Cloprostenol injection.

pregnancies at 30 to 35 days post-mating, with milder side effects, *viz.,* crying, vomiting, tachypnea and anorexia, which are manageable by supportive medications, without adverse effects on health of bitches.

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References

Abhilash, R.S., Anil Kumar, K., Biju, S., and Ajith, K.S. (2012). Termination of pregnancy in bitches - A general article. *Journal of Indian Veterinary Association (Kerala), 10*(1), 60-65.

Davidson, A.P. (2013). Prevention or termination of pregnancy in small animals. *Gray England Vetlexicon Canis.* pp. 1757-8256.

Onclin, K., and Verstegen, J.P. (1999). Comparisons of different combinations of analogues of PGF2 alpha and dopamine agonists for the termination of pregnancy in dogs. *Veterinary Research, 144*(15), 416-419.

Reddy, K.R.C., Rao, K.S.S., Raju, K.G.S., Raghavender, K.B.P., and Reddy, A.G. (2010). Therapeutic efficacy of mifepristone, cabergoline and cloprostenol for termination of pregnancy in bitches. *Indian Journal of Animal Reproduction, 31*(2), 19-22.

Romagnoli, S. (2017). Practical use of hormones in small animal reproduction. *Belo Horizonte, 41*(1), 59-67.

Romagnoli, S.E., Camillo, F., Novellini, S., Johnston, S.D., and Cela, M. (1996). Luteolytic effects of prostaglandin $F_2\alpha$ on day 8 to 19 corpora lutea in the bitch. *Theriogenology, 45*(2), 397-403.

Sanchez Riquelme, A., and Arias Ruiz, F. (2018). Gestation termination in breeding bitches by cloprostenol: A case report. *Revista de Investigaciones Veterinarias del Perú, 29*(4), 1556-1561.

Thangamani, A., Srinivas, M., Prasad, B.C., Anusha, K., and Rao, K.S. (2018). Therapeutic approaches for unwanted pregnancy in canine - A review. *International Journal of Science, Environment and Technology, 7*(2), 486-491.