



RESEARCH ARTICLE

EVALUATION OF EFFICACY OF POLYHERBAL UTERINE CLEANSER & RESTORATIVE PRODUCTS FOR TREATMENT OF RETAINED PLACENTA CASES IN CATTLE

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ABSTRACT

A total of 22 cows, out of which 10 cows were in late gestation and the remaining 12 cows with a history of retained placenta and abnormal lochial discharge, were selected for the purpose of study. The 10 cows in late gestation were placed in the control group. Group T0 (n=10) was kept as control and not given any treatment. Group T1 (n=6) was treated with Exapar bolus at the rate of 4 boli/day for 3 days. Group T2 (n=6) was treated with AV/UTB/26 at the rate of 2 boli/day for 3. Parameters viz. type of parturition, nature of lochial discharge, placental condition, time required for expulsion of placenta were evaluated. Results revealed that there was significant decrease in the cases of distocia and retention of placenta (ROP) in the Exapar bolus treated group as compared to control. The time required for involution was also significantly less in the Exapar bolus treated group. Thus, it can be inferred that Exapar is highly efficacious in the treatment of retention of placenta.

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INTRODUCTION

A fetal membrane or placenta is an essential organ for prenatal transfer of nutrients and oxygen from the dam to the fetus (Hanafi, 2011). The hormonal processes that lead to normal placental separation are multifactorial and begin before parturition (Amin *et al.*, 2013). Retained placenta in the bovine is most accurately described as failure of the fetal placenta (tufts) to separate from the maternal placenta (crypts) (Wetherillcan, 1965). Retention of fetal membranes (retained fetal membranes [RFM]) in cattle can lead to adverse health effects that ultimately affect reproductive performance (Beagley *et al.*, 2010). A retained placenta usually causes the cow to delay the next pregnancy for 2-6 months, late calving date in the following year and may result in an open cow next year (Hanafi *et al.*, 2011). Infertility related to retained placentas results from the infection not being cleared and the cow either conceiving later or being totally infertile (Lewis, 2015). The goal of an ideal therapy of retained foetal membranes would be to hasten the separation of the placenta and its expulsion from the uterine cavity as well as eliminate the bacterial contamination of the uterus. Although advocated at various times, oxytocin, estradiol, PGF_{2α}, and oral calcium preparations have not been shown to hasten expulsion of retained membranes or to prevent complications (Gilbert *et al.*,

2012). If the placenta is not detached from the caruncles oxytocin will not hasten its passage (Miller and Lodge, 1984). Several studies have shown that use of herbal tinctures has been significantly effective in the treatment of retention of placenta (Cui *et al.*, 2014). The present study has been undertaken to evaluate the efficacy of herbal oral supplement in the treatment of retention of placenta.

MATERIALS AND METHODS

Experimental design

The present study was undertaken at a Dairy farm in Gujrat to evaluate the efficacy of herbal supplement Exapar in the treatment of retention of placenta. A total of 22 cows, out of which 10 cows were in late gestation and the remaining 12 cows with a history of retained placenta and abnormal lochial discharge, were selected for the purpose of study. The 10 cows in late gestation were placed in the control group. Group T0 (n=10) was kept as control and not given any treatment. Group T1 (n=6) was treated with Exapar bolus at the rate of 4 boli/day for 3 days. Group T2 (n=6) was treated with AV/UTB/26 at the rate of 2 boli/day for 3. Parameters viz. type of parturition, nature of lochial discharge, placental condition, time required for expulsion of placenta were evaluated.

Statistical analysis

All the data obtained were analyzed as per the standard statistical procedure (Snedecor and Cochran, 1980).

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RESULTS AND DISCUSSION

Parturition and distocia

The incidence of distocia was found to be significantly lower in the Exapar bolus treated group T1 (only 16.66% cases of distocia) as compared to control group T0 (30 % cases of distocia) (Table 1). A substantial body of research has shown that regulation of different pro-inflammatory cytokines is essential for uterus activation and normal parturition (Christiaens *et al.*, 2008). Perusal of literature further brought to fore the role of Plumbagin (5-hydroxy-2-methyl-1,4-naphthoquinone), a quinone isolated from the roots of *Plumbago zeylanica*, which is a constituent ingredient of Exapar bolus, in suppression of the activation of NF-kappa B thus participating in modulation of T cell proliferation and aiding in normal parturition (Checker *et al.*, 2009). Therefore, the decrease in distocia cases in the group treated with Exapar bolus may be attributed to its constituent herb *Plumbago zeylanica* which helps in normal parturition through the aforementioned mechanisms.

Table 1. Parturition and distocia

Groups	Parturition (No. of cows)		
	Normal Parturition	Distocia	% of distocia
Group T0	7	3	30%
Group T1	5	1	16.66%
Group T2	3	3	50%

Nature of lochial discharge

The nature of lochial discharge was observed and recorded for the control and treated groups. In the control group T0, lochial discharge was reddish in three animals, reddish white in four animals and reddish yellow in three animals. In the Exapar bolus treated group T1, the lochial discharge recorded to be reddish in three animals, reddish white in two animals, reddish yellow in one animal. In the AV/UTB/26 treated group T2, the lochial discharge was recorded to be reddish in two animals and reddish white in four animals. The percentage of animals exhibiting reddish placenta was higher in the Exapar bolus treated group T1 (50 %) as compared to the control group T0 (30%).

Table 2. Lochial discharge

Groups	Lochial Discharge		
	Reddish	Reddish white	Reddish yellow
Group T0	3	4	3
Group T1	3	2	1
Group T2	2	4	-

Condition of the Placenta

Results revealed that in the control group T0, the placental condition was recorded to be normal/good in six animals (60% of the animals), leathery in one animal (10% of the animals) and abnormal in three animals (30% of the animals). In the Exapar bolus treated group T1, the placental condition was recorded to be normal/good in three animals (50% of the animals), leathery in one animal (16.66 % of animals) and abnormal in two animals (33.33% of animals). In the AV/UTB/26 treated group T2, the placental condition was recorded to be normal in four animals (66.66%) and abnormal in two animals (33.33%) (Table 3). The placental condition

was found to be significantly better in the AV/UTB/26 treated group as compared to the control group T0.

Table 3. Placental condition

Groups	Placental condition		
	Normal/Good	Leathery	Abnormal
Group T0	6	1	3
Group T1	3	1	2
Group T2	4	-	2

Expulsion of placenta

The instances of Retention of placenta (ROP) were significantly higher in the control group T0 (60% cases of ROP) as compared to the Exapar bolus treated group T1 (33.33% cases of ROP) and AV/UTB/26 treated group (50% cases of ROP). A significant drop in the cases of ROP was observed in the Exapar bolus and AV/UTB/26 treated groups (table 4). This may be attributed to the presence of *leptadenia reticulata*, a constituent herb of Exapar, which is known to possess abortifacient effect (Vaidya and Adarsha, 1965).

Table 4. Expulsion of placenta

Groups	Expulsion of placenta		
	Retention of placenta	Normal cases of placenta expulsion	% of ROP
Group T0	6	4	60%
Group T1	2	4	33.33%
Group T2	3	3	50%

Time required for involution

The time required for the involution of uterus was significantly reduced in the Exapar bolus treated group T1 (37.50 days) and AV/UTB/26 treated group T2(40.33 days) as compared to the control group T0 (45 days) (table 5). The decrease in time required for involution in the Exapar treated group and AV/UTB/26 treated group may be ascribed to the herb *Rubia cordifolia* which is known to have favourable effect on the uterus.

Table 5. Time required for involution

Groups	Time required for involution
Group T0	45.10 days
Group T1	37.50 days
Group T2	40.33 days

Conception rate

The conception rate was recorded to be significantly higher in the Exapar bolus treated group T1 (66.66%) and AV/UTB/16 treated group T2 (66.66%) as compared to the control group T0 (60%) (Table 6).

Table 6. Conception rate

Groups	Pregnant (no. of animals)	Non-pregnant (no. of animals)	Conception %
Group T0	6	4	60%
Group T1	4	2	66.66%
Group T2	4	2	66.66%

Conclusion

The animals from the control group were healthy animals whereas the animals from the treated groups had a previous

history of retained placenta. The results from the treated groups indicate a pattern of significant improvement both in the cases of retention of placenta and conception rate as compared to the control despite having a previous history of occurrence of retention of placenta. Thus, it can be concluded that oral administration of polyherbal formulations indicated for the purpose of uterine cleansing were found to be highly effective in reducing the instances of retention of placenta, decreasing the time for involution and increasing the conception rate.

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