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Influence of Retained Fetal Membranes on Reproductive Health of Crossbred Cows

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Abstract

A study was carried out to compare the effect of retained fetal membranes on reproductive health of crossbred cows. 24 crossbred cows selected were divided into control group (consisted of 6 cows which had normal 3rd phase of parturition) and RFM group (consisted of total 18 cows with retained fetal membranes for more than 12 hrs). The time required for expulsion fetal membranes, cessation of lochial discharge, gross uterine involution, service period and number of AI required per conception was significantly ($P < 0.05$) higher and appearance of first postpartum estrus was non-significantly higher in retained fetal membranes (RFM) cows than normally calved cows.

Key Words: Crossbred cows, Parturition, Reproductive health, Retained fetal membranes.

Introduction

Today India is the oyster of global dairy industry. Major portion of India's economy is based on agriculture and animal husbandry wherein milk production plays a vital role. India is ranked first in milk production in the world. Milk production in India accounts for 18.5% of world production, achieving an annual output of 146.3 million tons during 2014-15 (Economic Survey, 2015-16). Retention of fetal membranes (RFM) in dairy animals is not a new problem; however it largely remains inadequately addressed. In normal parturition the fetal membranes of cow should come out within 8 hrs following calving and if it is retained for longer than 12 hours, then the condition is called RFM (Hanafi *et al.*, 2011). The RFM is one of the most common conditions occurring in dairy cows following parturition. RFM leads to retention of fluid and membranes beyond the normal period and provides excellent media for bacterial growth. The bacterial infections occur as a result of poor sanitation around parturition and due to RFM (Ahmed and Elsheikh, 2013). It is commonly followed by delayed involution of the uterus, drop in milk production and infertility resulting in economic loss to the owner (Lalrintluanga and Lalnuntluangi, 2010). In view of clinical and economical significance of RFM, the present study was envisaged with the objective to compare the effect of RFM on reproductive health of crossbred cows.

Materials and Methods

The study was carried out on clinical cases brought to the Department of Veterinary Gynaecology and Obstetrics of the College at Mhow, College dairy farm and Villages in and around Mhow including

Ambulatory clinics. In all, 24 crossbred cows were selected. These were divided into control group (consisted of 6 cows which had normal 3rd phase of parturition) and RFM group (consisted of total 18 cows with RFM for more than 12 hrs). The postpartum cows were kept in observation till expulsion of fetal membranes and cessation of lochial discharge. Rectal examination of cows was also performed until gross uterine involution completed and all cows were observed in morning and evening for detection of first postpartum estrus, successful conception for service period and number of services required per conception was recorded. Analysis was done as per the standard statistical method by using completely randomised design (Snedecor and Cochran, 1994).

Results and Discussion

The time required for expulsion of fetal membranes in normal control group was 4.93 ± 0.13 hrs; cows, while RFM group took longer time (18.73 ± 1.05 hrs) to release their fetal membranes. Significant variation was found ($P < 0.05$) between the two groups. Similar findings were also reported by Roberts (1986) and Mahmoud (2010). RFM may be due to failure of immune mediated rejection of the fetal membranes after parturition. Factor influencing normal placental maturation is down regulated by antioxidative defense mechanisms against reactive oxygen species (McNaughton and Murray, 2009).

The mean duration of cessation of lochial discharge was significantly ($P < 0.05$) higher in RFM cows than the normally calved cows (11.00 ± 0.34 vs 9.00 ± 0.19 days). Similar findings were also reported by Mahmoud (2010) and Waheeb *et al.* (2014). The lochial discharge possesses macrophages and neutrophils which control the infection. The mean time required for gross uterine involution was significantly ($P < 0.05$) shorter in normally calved control group than the RFM group (28.83 ± 0.33 vs 31.11 ± 0.55 days). Similar findings were also reported by Saut *et al.* (2011) in cows and Rathore (2008) in buffaloes.

The occurrence of first postpartum estrus was non-significantly earlier in control group than the RFM group (75.17 ± 1.93 vs 82.56 ± 1.54 days), and concurred with reports of Shiferaw *et al.* (2005) and Gafaar *et al.* (2010) in cows and Rathore (2008) in buffaloes. The mean service period was significantly ($P < 0.05$) lower in normal control group than that of RFM group (103.33 ± 1.2 vs 123.94 ± 4.41 days), which supported the earlier reports of Pandey *et al.* (1994) and Stevens and Dinsmore (1997).

The mean number of services per conception in normal control group was 1.33 ± 0.07 , whereas the corresponding value for the RFM group was 2.39 ± 0.14 , which differed significantly ($P < 0.05$), and corroborated with Holt *et al.* (1989) and Han and Kim (2005). The RFM had an adverse effect on postpartum reproductive efficiency of crossbred cows as it resulted in delayed cessation of lochial discharge, delayed gross uterine involution, delayed appearance of first post-partum estrus and increased in the service period and number of AI required per conception.

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Conflict of Interest: All authors declare no conflict of interest.

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