

# EFFECT OF RFM ON HISTOMORPHOLOGY OF UTERINE ENDOMETRIUM IN CROSS BRED COWS

**B.Chandra prasad and K.Mouli Krishna<sup>1</sup>**

Veterinary assistant surgeon, State institute of animal health  
Tanuku, west godavari

The present investigation was carried out in Holstein Friesian crossbred cows at a commercial dairy farm located near Tirupati. A total of 30, consisting of ten calved normally (Group I) and 20 RFM affected crossbred cows maintained under uniform conditions were selected randomly. The RFM affected cows were divided into two groups of ten each (Group II and Group III). The Group II cows were subjected to manual removal of RFM and provided a variety of drug therapy. Whereas, Group III cows were not subjected to manual removal of RFM, however, 2-3 infusions of 20 ml diluted povidone - iodine intrauterine at weekly intervals starting at day 15-17 postpartum were placed.

Each cow was evaluated for completion of uterine involution by palpation per rectum weekly starting from day 15-17 postpartum until the end of the experiment. Endometrial biopsy samples from all the experimental cows were collected and tissues were processed by routine procedures and finally stained with haematoxylin and eosin stain. During the period of experiment all cows were found to be healthy. All the cows were observed for uterine involution, first postpartum observed estrus and expulsion of retained fetal membranes in group III. Observations revealed that the non-removal of RFM did not affect the subsequent performance of the animals.

The retention of fetal membranes was defined as failure of dehiscence and a lack of expulsion of the fetal membranes within 12 hours after expulsion of fetus. The commonly practiced

methods of tackling RFM included manual removal, non-removal and medicinal therapy.

The manual removal of RFM had many disadvantages such as intrauterine trauma, severe toxemia and septicemia and interference with uterine defence mechanisms. (McClary 1999). Considering the disadvantages of manual removal, non-removal approach was proposed and adopted successfully by different groups of scientists (Drillich et al. 2003). Uterine involution was known to be delayed in RFM affected cows. Uterine biopsy was a valuable diagnostic tool in identifying morphological alterations in the uterine endometrium and often supplement routine postpartum examination by palpation per rectum (Morrow 1980).

In Group III 30, 50 and 20 per cent crossbred cows expelled retained fetal membranes spontaneously as a bulky mass between day 1-4, 5-8 and 9-12 postpartum, respectively with an overall average of 6.70 days (2-12 days). The observations recorded in the present investigation were similar with that of earlier reports (Benesch and Wright 1952) who reported spontaneous expulsion of RFM ranging from 2-11 days. Eighty per cent of RFM affected cases expelled placenta by day 8 postpartum.

Mean days required for completion of uterine involution were found to be  $33.10 \pm 1.32$ ,  $35.20 \pm 1.12$  and  $33.80 \pm 1.67$  days in Group I, Group II and Group III respectively. The values of uterine

---

<sup>1</sup>Head of the Department, Department of Gynaecology College of Vety. Science, Tirupathi

involution did not differ between groups. The results of the present investigation were in accordance with Rao and Rao (1980) who recorded uterine involution as 31-36 days in normally calved cows. Though there was no significant difference between treatments, the Group II cows had taken few days more ( $35.20 \pm 1.12$  days) than Group III ( $33.80 \pm 1.67$  days) and Group I ( $33.10 \pm 1.32$  days) for uterine involution.

The mean days to first postpartum observed estrus were  $75.30 \pm 6.00$  with a range of 48-110 days,  $83.20 \pm 6.07$  with a range of 60-115 days and  $78.30 \pm 5.89$  with a range of 55-110 days in Group I, Group II and Group III, respectively. The interval between parturition and first postpartum observed estrus between different groups did not differ significantly. The results in the present investigation were in accordance with the earlier scientists Drillich (2003) who recorded up to 71.40 days in normally calved cows and 75-80 days in RFM affected cows.

Microscopically, the uterine lining epithelium was found to be normal with pseudo stratified columnar type. Sub epithelial diffuse hemorrhages, cellular infiltration in uterine stroma and stromal edema were observed. Uterine glands were found dilated and filled with desquamated material. Cytoplasmic vacuolation in glandular epithelium and edema of uterine glands were observed. These features were recorded in 70, 50 and 70 per cent cows in Group I, Group II and Group III, respectively.

In other endometrial biopsies obtained from aged cows (>6 calvings) atrophy of endometrial glands with sub epithelial hemorrhages, stromal edema and moderate cellular infiltration were prominently found. Mild (or) moderate peri glandular fibrosis with 2-3 concentric layers of fibroblasts around few uterine glands were recorded. Such a type of endometrial changes were noticed in 20, 30 and 20 per cent cows in Group I, Group II and Group III, respectively.

In other endometrial biopsies glandular atrophy, sub epithelial hemorrhages, stromal edema and cellular infiltrations were recorded. Mild to moderate peri glandular fibrosis with 2-3 concentric layers of fibroblasts around few uterine glands were noticed in 20, 30 and 20 per cent in Group I, Group II

and Group III cows, respectively. Different degrees of periglandular fibrosis was produced by intrauterine infusion of iodine solutions, (Singh et al. 1987). McEntee (1990) opined that infusion of iodine solution intrauterine produced inflammatory changes in uterine endometrium that had disappeared with in few days later. Hence, suggested no adverse influence of iodine on uterine endometrium. Morrow (1980) suggested that the uterine endometrial biopsy technique was of more useful in evaluating the endometrial and ovarian status in postpartum cows.

Based on the observations on spontaneous shedding of RFM, health, uterine involution, interval to first postpartum observed heat and microscopic features on uterine endometrium revealed that the non-removal of RFM did not affect the subsequent performance of the animals. In fact it had slightest advantage over the manual separation. Hence, the concept of non-removal of RFM could be considered confidently for implementation. In support of the present observations McClary (1999) suggested that manual removal should be discouraged since it might result in metritis, pyometra, perimetritis etc and impairs subsequent fertility.

Uterus had the powerful systems of natural repair and recovery, provided they were not disturbed. In this respect at any cost unnecessary intrauterine manipulations should be discouraged and that manual removal be if the RFM were due to uterine atony (or) mechanical blockage (or) if a majority of attachments have been released placenta

might be easily teased through open cervix. These circumstances coupled with better managerial conditions, facilitate the animals to recover naturally in the majority instances

### REFERENCES

Benesch F and Wright J G 1952 Veterinary obstetrics 1<sup>st</sup> edition. Bailliere, Tindall and Cox. 7 and 8 Henrietta street W.C.2 pp. 359-371.

Drillich M, Pfutzner A, Sabin H J, Sabin M and Hauwieser W 2003 Comparison of two protocols for the treatment of retained fetal membranes in dairy cattle. Theriogenology 59 : 951-960.

McClary D 1999 Retained placenta cited in current veterinary therapy W.B. saunders

Philadelphia.

McEntee K 1990 Reproductive pathology of domestic mammals. Academic Press, Inc. New York pp. 110-112 and 142-143 and 154 and 167.

Morrow DA 1980 Current therapy in theriogenology W B Saunders Company Philadelphia, London.

Rao C C and Rao A R 1980 Involution of genitalia of Ongole and Cross-bred cows. Indian Journal of Animal Science 50 : 83

Singh U, Gupta R C, Sharma D N and Sinha A K 1987 Histomorphological and cytological studies on the endometrial glands of repeat breeding cows treated with lugol's iodine and oxytetracycline. The Indian Journal of