INCIDENCE AND CLINICAL FACTORS OF RETENTION OF FETAL MEMBRANES IN DAIRY BOVINES OF ANAND DISTRICT

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ABSTRACT

The overall incidence of RFM in dairy bovines of Amul milk shed area of Anand district during the year 2010-11 was found to be 46.37 per cent of the total reproductive disorders (27480/59267) and as 4.81 per cent of the total clinical cases (27480/571080) attended. The highest incidence was observed during monsoon (45.52 %) followed by winter (32.66 %) and the least in summer (21.82 %). Further, an epidemiological investigation was carried out on 50 Surti buffaloes with RFM managed at the farmers' door revealed that the sex of calf and suckling/weaning had no effect on the incidence of RFM. The maximum number of RFM cases were observed in buffaloes of third parity (32 %) followed by second (20 %) and fourth (16 %) parity. With the increase in the quantity of concentrate feeding, the incidence of RFM decreased. The effect of previous parturient abnormalities showed less effect on RFM in buffaloes. However, as the birth weight of calf increased, the incidence of RFM increased.

KEY WORDS: Dairy bovines, Retention of fetal membranes, Incidence, Clinical Factors, Amul milk shed

INTRODUCTION

Retention of fetal membranes is one of the most common conditions occurring in dairy bovines following parturition. Endometritis, metritis, pyometra, delayed involution of the uterus, infertility/ sterility as well as drop in milk production and increased inter-calving period owing to stress and trauma are the common entities that follow RFM resulting in economic loss to the farmers. Epidemiological investigation has indicated involvement of several risk factors for RFM (Bendixen et al., 1987). The reproductive/calving pattern and breeding behaviour of cows and buffaloes vary due to changes in season and agro-climatic conditions of area and accordingly the obstetrical/ reproductive disorders also vary. The present study was, therefore, undertaken to record the incidence of retention of fetal membranes and clinical factors such as season, sex of calf, parity, nutrition, previous parturient abnormalities, birth weight of calf, and effect of suckling influencing the RFM in dairy bovines of Amul milk shed area of Anand district in Gujarat.

MATERIALS AND METHODS

The data were collected from Amul Research and Development Association (ARDA), Anand over one year period (March 2010 to February 2011) to work out the incidence of the reproductive disorders and RFM in particular in the Amul milk shed area of Anand district of Gujarat. In all 571080 clinical cases of different nature treated by the Veterinarians of ARDA during the year in cattle and buffaloes were analyzed to know the overall and seasonal incidence of RFM in dairy bovines of the area. Further, a total of 50 Surti buffaloes with RFM managed at the farmers door were selected to evaluate the epidemiological aspects that is the clinical factors, viz., season, sex of calf, parity, nutrition, previous parturient abnormalities, birth weight of calf, and effect of suckling or weaning affecting RFM in the Amul area.

RESULTS AND DISCUSSION

The overall incidence of RFM in Amul milk shed area was observed to be 46.37 per cent (27480/

59567) of the total reproductive disorders and 4.81 per cent (27480/571080) of the total clinical cases attended during the year by Veterinary Division of Amul Dairy (ARDA), Anand. This is comparable with the reported incidence of 42.2 to 54.8 per cent of RFM in dairy cattle (Sandals et al., 1979; Kaikini and Deshmukh, 1984; Erdogan et al., 2004). Taraphder et al. (2004), however, noted the prevalence of retention of fetal membranes in buffaloes as 8.60 per cent of the reproductive disorders. The monthly incidence of both total reproductive disorders and RFM cases varied significantly (Table 1).

Table 1: Month-wise incidence of RFM and reproductive disorders in bovines of Amul milk shed area of Anand district (2010-11)

Month	Total clinical cases	Reproductive disorders		Per cent distribution over the year	RFM cases		Per cent distribution over the year
		No.	Per cent*		No.	Per cent*	
MAR	39796	3423	8.60	5.78	1683	4.23	6.12
APR	37367	3137	8.40	5.29	1437	3.85	5.23
MAY	37134	3311	8.92	5.59	1380	3.72	4.95
JUN	38199	3608	9.45	6.09	1515	3.97	5.53
JUL	47625	5016	10.53	8.46	2238	4.70	8.14
AUG	63589	6652	10.46	11.22	3062	4.82	11.14
SEP	64044	8048	12.57	13.58	3644	5.69	13.26
OCT	59130	7574	12.81	12.78	3565	6.03	12.97
NOV	49491	6049	12.22	10.22	2944	5.95	10.71
DEC	48747	5220	10.71	8.81	2597	5.33	9.45
JAN	45971	4028	8.76	6.78	1900	4.13	6.91
FEB	39987	3201	8.00	5.40	1535	3.84	5.59
TOTAL	**571080**	**59267**	**10.38**	**100**	**27480**	**4.81**	**100**

***** Indicate per cent incidence on the basis of clinical cases.

The highest incidence of RFM was observed during monsoon (45.52%) followed by winter (32.66 %) and summer (21.82 %; Table 2). Comparable observations have been documented by Gupta (1997), Kumar et al. (2002) and Saxena et al. (2002) in buffaloes. The seasonal variation noted was mainly attributed to the maximum number of calving occurring during monsoon season and also to the effect of high temperature humidity index in early monsoon. The variation in the occurrence of the RFM might be due to climatic conditions, breed difference and poor management in field conditions as noted in our study.

The RFM cases were found to be almost similar in buffaloes with both the sex of calves (48 vs 52%, M/F). The sex of calf had no significant effect on the incidence of RFM in our study. The present finding is in agreement with the reports of Bhalaru et al. (1985), Mutiga et al. (1993),

Narayan et al. (2000) and Akar et al. (2001). However, Joosten et al. (1988), Gabr et al. (2005), Majeed et al. (2009) and Gaafar et al. (2010) reported that the male calves increased the risk of RFM. As the lactation number increased, the incidence of RFM also increased. The maximum number of RFM was observed in buffaloes of third parity (32 %) followed by second (20 %) and fourth (16 %) parity, while in other parities it varied from 4 to 8 per cent. It might be due to the peak milk production at third and fourth lactation leading to stress which increased the incidence of RFM.

Table 2: Season-wise incidence of RFM in dairy bovines of Anand district

Season	No. of RFM cases	Per cent incidence of RFM on the basis of		
		RFM cases (27480)	Total reproductive disorders (59267)	Total clinical cases (571080)
Winter	8976	32.66	15.15	1.57
Summer	5995	21.82	10.11	1.05
Monsoon	12509	45.52	21.11	2.19
Overall	**27480**	**100**	**46.37**	**4.81**

The present findings revealed higher incidence of RFM in the group of buffaloes which was fed with low concentrate diet than the high concentrate diet (76 vs 24 %). The results indicate that with the increase in the quantity of concentrates feeding, the incidence of RFM decreases. This may be due to high energy intake due to which the body condition of the animal improves making it capable to expel the placenta normally. Similar trend was also observed by Nakhashi (1993) and Chassagne et al. (1996).

Most (80 %) of RFM buffaloes under study had history of normal previous parturition, and only 20 per cent buffaloes had faced problems of RFM, abortion or dystocia in the previous parturition. This result suggests that the previous parturient abnormalities have least significant influence on the subsequent recurrence of RFM in buffaloes. However, Larson et al. (1985) observed that the incidence of retained placenta was higher in cows with history of abortion or placental retention at the previous parturition.

The effect of birth weight of calf had positive effect on incidence of RFM. As the birth weight of calf increased, the incidence of RFM was high. The maximum number of RFM cases was observed in buffaloes which delivered calf of more than 21 kg (44%), while the incidence was low (24%) for calves with birth weight less than 17 kg. This was in accordance with the findings of earlier workers (Samad et al., 1980; Joosten et al., 1988 and Gabr et al., 2005). Samad et al. (1980) opined that the heavy weight of the buffalo fetus was responsible for uterine atony which leads to the RFM. The effect of suckling had no effect on the incidence of RFM as the incidence was 48 vs 52 per cent for suckled vs weaned animals.

CONCLUSIONS

Significantly higher incidence of RFM observed mainly during monsoon, in 3rd parity buffaloes and in low concentrate fed groups suggest that the high calving rate with stress of lactation and nutritional

deficit were the major causes of RFM. Hence, due care and attention must be given to animals for these issues under field conditions to reduce the incidence of RFM in dairy animals.

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REFERENCES :

Akar, Y., Yildiz, H., Ocal, H. and Apaydin, A.M. (2001). Vet. Bilimleri Dergisi, 17(2):13-17 (c.f. Vet. Bull., 72(1):289).

Bendixen, P.H., Vilson, B., Ekesbo, I. and Astrand, D. (1987). Prev. Vet. Med., 4:377-387 (c.f. Vet. Bull., 57:7261).

Bhalaru, S.S., Tiwana, M.S. and Dhillon, J.S. (1985). Indian J. Anim. Res., 19:101-104.

Chassagne, M., Barnouin, J. and Faye, B. (1996). Vet. Res., 27: 491-501.

Erdogan, H. M., Gunes, V., Citil, M. and Unver, A. (2004). Turkish J. Vet. Anim. Sci., 28:745-752.

Gaafar, H.M.A., Shamiah, S.M., Shitta, A.A. and Ganah, H.A.B. (2010). Slovak J. Anim. Sci., 43: 6-12.

Gabr, S.A., Shamiah, S.M. and Abuelhamd, M.A. (2005). J. Agri. Sci., 30: 6532.

Gupta, A. (1997). Treatment of Placental Retention and Subsequent Reproductive Performance in Murrah Buffaloes. M.V.Sc thesis, J.N.K.V.V., Jabalpur, India.

Joosten, I., Stelwagen, J. and Dijkhuizen, A.A. (1988). Vet. Res., 123: 53-57.

Kaikini, A.S. and Deshmukh, M.J. (1984). Indian J. Anim. Reprod., 5:30-32.

Kumar, D., Saxena, V.B. and Gupta, H.P. (2002). Indian Vet. Med. J., 26: 53-54.

Larson, L.L., Ishaka, M.A., Owena, F.G., Erickson, E.D. and Lowry, S.R. (1985). Anim. Reprod. Sci., 9: 31-43.

Majeed, A.F., Aboud, Q.M., Hassan, M.S. and Muhammad, A.Y. (2009). Iraqi J. Vet. Sci., 23: 5-8.

Mutiga, E.R., Mbai, K., Tsuma, V.T., Karitu, P.T. and Ojiayo, S.O. (1993). Indian Vet. J., 70: 333-336.

Nakhashi, H.C. (1993). Investigations on Clinical and Biochemical Aspects of Retention of Fetal Membranes in Mehsani Buffaloes. M.V.Sc Thesis, GAU, Sardarkrushinagar, India.

Narayanan, K., Purbey, L.N., Singh, R. and Sanwal, P.C. (2000). Indian J. Anim. Reprod., 21: 109-111.

Samad, A., Ali, C.S., Ahmad, T.C.M. and Rehman, N.U. (1980). Proc. 10th Congr. Anim. Reprod. and A.I., NARC, Islamabad.

Sandals, W.C.D., Curtis, R.A., Cote, J.F. and Martin, S.W. (1979). Can. Vet. J., 20: 131-135.

Saxena, V.B., Gupta, H.P., Prasad, J.K. and Shukla, M.K. (2002). Indian Vet. Med. J., 26: 149-150.

Taraphder, S., Tomar, S.S. and Gupta, A.K. (2004). Indian J. Anim. Health, 43: 67-71.

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