

Incidence of Periparturient Complications in Surti Buffaloes

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Abstract: Reproductive problems in buffaloes are of significant economic concern in dairy farming. Maximizing reproductive efficiency is the goal in dairy herds for better economics return. So, present work was conducted with an aim to know the incidence of periparturient problems usually found in buffaloes during the transition period. Out of total 99 adult head of Surti buffaloes on the farm, 79 calving were noted which revealed no incidence (0.00 %) of abortion, dystocia, retention of foetal membrane and postpartum genital prolapse, however, prepartum prolapse and still birth were observed in 2 (2.53 %) and 7 (8.86 %) animals, respectively, thus overall periparturient disorders was recorded as 11.39 per cent in Surti buffaloes.

Keywords: Incidence, Reproductive problems, periparturient period, buffalo

INTRODUCTION

Buffalo is the premier dairy animal in the developing countries of Asia and is the mainstay of the Indian dairy industry, contributing over 60 per cent of the total milk production [21]. India produced over 133 million tonne milk during the year 2012-13 [4], which was two-third of the world's buffalo milk production. Besides, producing large quantity of milk with high fat and SNF, buffalo also plays a significant role as draught and meat animal. India has about 105.5 million buffalo population which comprises of 57.3 per cent of the total world's buffalo population and the per cent increase in India was about 1.50% as compared to 1.45% in Asia and 2.60% in rest of the world [4].

The economy of livestock production largely depends upon the reproductive efficiency of the animals. The transition or periparturient period, from 3 weeks before to 3 weeks after parturition, is a stressful time for dairy cows [5]. During the transition period, immuno suppression commonly occurs and cows exhibit great susceptibility to a number of diseases [17]. Reproductive problems in buffaloes are of significant economic concern in dairy farming. Maximizing reproductive efficiency is the goal in dairy herds for better economics return. Prolonged interval between calving and onset of ovarian function is regarded as one of the most important Gynecological problems

responsible for failure to maintain optimum reproductive efficiency, which in turn causes economic loss to the dairy farmers [12].

MATERIALS AND METHODS

To assess the incidence of pre and post-partum complications a total of 99 calving recorded during year 2014-2015 at Livestock Research Station, Navsari Agricultural University, Navsari, Gujarat. Periparturient problems include prepartum prolapse, abortion, stillbirth, dystocia, retention of placenta and prolapse of genitalia. The present study was performed as a part of PG research work, which was approved by Director of Research, Navsari Agricultural University, Navsari, Gujarat and Committee for the purpose of control and supervision of experiments on animals (CPCSEA), New Delhi.

RESULTS AND DISCUSSION

Out of total 99 adult head of Surti buffaloes on the farm, 79 calving were noted during the study period which revealed no incidence (0.00 %) of abortion, dystocia, retention of foetal membrane and postpartum genital prolapse, however, prepartum prolapse and still birth were observed in 2 (2.53 %) and 7 (8.86 %) animals, respectively, thus overall periparturient disorders was recorded as 11.39 per cent in Surti

buffaloes maintained at Livestock Research Station, Navsari Agricultural University, Navsari, Gujarat.

As against zero (0) per cent incidence of abortion observed in the Surti buffaloes, at LRS, Navsari, high incidence of abortion (0.2 to 15.22 %) has been documented in bovines at different places by different workers [14, 7, 23, 13, 27, 18, 26, 29, 30].

Similarly, in comparison to zero per cent incidence of dystocia and retained placenta in the present study, high incidence of dystocia and/or retained placenta (0.44 to 11.14 %) has been recorded in earlier studies in cattle [24, 7, 30, 18, 26, 27] and buffaloes [28, 13, 15]. Singh *et al.* [29] further stated that retained placenta was 4 to 6 times more likely to occur after twin births as compared to single births in dairy buffaloes and cows.

Moreover, some research workers compared vitamin E and/or selenium alone and its combination with other agent and their effect on retention of foetal membrane and reported significant ($P < 0.05$) beneficial effect in reducing the incidence of retained foetal membrane over control as 0.0 vs. 15 per cent [20]; 3.0 vs. 10.1 per cent [1]; 8.8 vs. 51.2 per cent [10]; 10.6 vs. 17.8 per cent [3] in dairy cattle and 16.66 vs. 55.33 per cent [22] in Murrah buffaloes.

Parenteral supplementation of vitamin E with selenium significantly ($p < 0.05$) reduced the incidence of retention of foetal membrane from 6.5 to 3.0 per cent in UK dairy cows [2], while heifers that received the vitamin E injection (3000 IU) one week before calving had a reduced risk of retention of foetal membrane by 40 per cent [16]. Moreover, vitamin E and selenium supplementation reduced the incidence of retained foetal membrane only in cattle that were marginally deficient, but in cattle that were either severely deficient or had an adequate selenium intake in that there was no response [25]. On the other hand, selenium and vitamin E supplementation had no significant effect (10 % vs. 13.1 %) on the incidence of placental retention, when its incidence was already low [8].

On the contrary, Harrison *et al.* [32] reported that the incidence of retention of placenta was significantly ($p < 0.05$) lower (zero) in non-lactating cows treated with selenium and Vitamin E, whereas it was 17 per cent in cows treated with selenium alone and 20 per cent in cows treated with vitamin E alone, which did not differ (16 %) significantly from control animals. Further, they opined that supplementation with vitamin E and selenium was required to prevent retained placenta in dairy cattle fed a diet low in selenium and vitamin E.

Erskine *et al.* [6], however, found that vitamin E injection alone reduced the incidence of retained foetal membrane, while Moeiniet *al.*, [20] found that the incidence of retained placenta was not reduced, when

cows received diets containing over 0.06 mg/kg DM of selenium with vitamin E, unless they were also supplemented with selenium.

The reason behind low incidence reported by some workers with selenium treatment must be that selenium acts as a part of glutathione peroxidase enzyme by removing the free radicals within body, thus minimizing oxidative stress and decreasing the incidence of retained foetal membrane.

Moreover, differences concerning the time required for placental expulsion between groups of vitamin E and Selenium treated and controls could be the result of improved uterine smooth muscle function as reported by Youssef *et al.* [31] in cows and Mavi *et al.* [19] in buffaloes.

In the present study, prepartum prolapse was recorded in 2.53 per cent Surti buffaloes, which was higher than 1.6 per cent noted by Shivhare *et al.* [27] in Frieswal cows, Whereas, Singh *et al.* [28] reported higher incidence (9.42 per cent) of ante partum prolapse in Punjab state in the buffaloes. As compared to present findings, lower incidence of genital prolapse ranging from 0.2 to 2.40 per cent has been recorded in the different species of cattle and buffaloes by some workers [7, 28, 30, 26] and higher incidence ranging from 2.66 to 18.14 per cent by others [33, 13, 29].

In the present study, overall very high incidence of still birth was observed as 8.86 per cent, which was higher than that (0.44 to 5.24 %) reported by Kaushish and Mathur [29] in Murrah buffaloes; Mandal *et al.* [18] in Sahiwal cattle; Rafiqul and Nardoo [23] in cattle; Singh *et al.* [30] in cross bred cows at Bareilly and Allahabad, respectively; Shivhare *et al.* [27] in Frieswal cows as 0.44 per cent; 2.70 per cent; 2.70 per cent; 4.60 and 5.24 per cent; 4.9 per cent and 5.1 per cent, respectively.

In this study, the overall incidence of periparturient disorders was recorded as 11.39 per cent in Surti buffaloes. This result corroborated well with that of Singh *et al.* [28], as 12.68 per cent in Punjab state with the maximum disorders occurred during summer (28.85 %) and minimum in winter (7.78 %) in buffaloes. As compared to the present findings, higher incidence of parturient disorders recorded includes 14.21 percent by Mandal *et al.* [18] in Sahiwal cattle maintained at Military farm, Meerut; 24.1 per cent by Jadhav *et al.* [9] in Holstein x Sahiwal cows at 3 Military farms in India, incidence increased with parity; 24.6 per cent by Kadu *et al.* [11] in farm buffaloes in Maharashtra state and still very high 43.8 per cent of periparturient disorders reported by Mandali *et al.* [33] in Surti buffaloes of rural Anand with the most periparturient disorders took place in the monsoon season (August to September) at the Anand district in Gujarat and 44.3 per cent of major (prepartum and

postpartum) reproductive problems noted by Sekhar and Rajani [26] of dairy cattle in selected dairy farms. Further, the increased incidence of prepartum and postpartum reproductive disorders might be due to pregnant animals were more susceptible to selenium deficiency than the non-pregnant animals, stated by Youssef *et al.* [31] in Egyptian buffaloes. While, comparatively low overall incidence of calving abnormality recorded was 4.75 percent by Kaushish and Mathur [13] in Murrah buffaloes.

All the Surti buffaloes in our study were actually found to be healthy having good body condition score and maintained on standard feeding, breeding and management practices. In addition to this, every year culling of those animals having periparturient disorders that hamper future fertility parameters, might be the reason behind none of that incidence (*viz.* abortion, dystocia, retention of placenta and genital prolapse) were recorded during the study. Though, the lower prevalence of retention of foetal membrane and genital prolapse in this study could be attributed to no incidence of abortion and dystocia that depends on management difference especially in feeding and sanitation.

The great variation in the incidence of stillbirth recorded by various research workers might be due to management practices (breeding, genetic selection, husbandry, etc.) adopted by individual farms that influenced the incidence of stillborn calves.

CONCLUSIONS

In a nutshell, the higher and lower incidence of periparturient complications observed by some earlier workers might be influenced by nutrient deficiency, seasonal variation, environmental condition, management practices, lactational stress, ageing/ parity, breed of sire and pathological disorders, etc.

ACKNOWLEDGEMENTS

The authors are highly thankful to the Dean, Vanbandhu College of Veterinary Science and A.H. and Research Scientist, Livestock Research Station, NAU for the availability of experimental animals.

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