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Management of parturient paresis in a crossbred dairy cow

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Abstract
A crossbred JX cow on its sixth parity was presented with the history of calved 2 days ago and was semi-intensively managed. The daily production of milk was about 15.5 litres. Physical examination revealed the temperature and pulse rate were within the normal range, but there was increased in the respiratory rate and a dehydration status of 5%. The dairy cow was diagnosed with milk fever and the treatment was given. Slow infusion of 450 mL of Calcium magnesium borogluconate into the jugular vein over a period of 10-20 minutes. Intravenous infusion of 1000mL 0.9% NaCl and 1000mL of 25% Glucose were instituted in order to restore blood glucose level and to correct the dehydration. The animal recovered after the treatment, thus the prognosis was good and supportive therapy was continued for two days and animal had an uneventful recovery.

Keywords: milk fever, calcium, deficiency, crossbred cow

Introduction
Milk fever is a metabolic disease occurring in dairy animals during the periparturient (meaning around the parturient) period. The reproductive capability of the animal, a major concern in its economic value in dairy farming, is frequently related to periparturient events, as undesirable health related events during this period might result in tremendous economic losses to farmers. By the end of gestation in dairy animals, the foetal calf and the associated placenta make huge demands for energy, protein and minerals. Further, increasing production of milk after calving places an enormous demand for glucose and minerals at a time when feed intake would not have reached its peak (RCI, 2000) [9], leading to draining of glucose and calcium from the blood and leaving the milch animal's metabolism under severe stress, as she transitions to lactation (Bethard and Smith, 1998) [1].

Clinical examination and treatment
A crossbred JX cow on its sixth parity was presented with the history of calved two days ago and was semi-intensively managed with a complaint of prolonged lateral recumbent, weakness and inappetance (Fig1), absence of defecation and urination. On examination, rectal temperature was 99°F and all other vital parameters were within normal physiological range. Upon auscultation of the heart, there was a decreased intensity of the heart sound was noticed. Based on this history, the case was tentatively diagnosed as parturient paresis. The treatment was started with slow infusion of 450 mL of Calcium magnesium borogluconate into the jugular vein over a period of 10-20 minutes. Intravenous infusion of 1000mL 0.9% NaCl and 1000mL of 25% Glucose were instituted in order to restore blood glucose level and to correct the dehydration. Within half an hour of the treatment the cow was urinated, defecated and it was immediately recovered (Fig. 2), hence the prognosis was good. Then the owner was advised for incomplete milking and to give oral calcium and magnesium sulphate salt for next two days. The animal was recovered uneventfully.

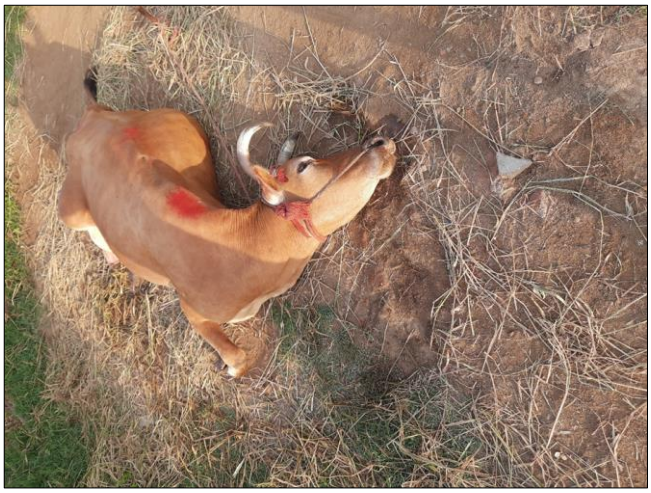

Fig 1: Cow on Lateral recumbency

Fig 2: Immediate Recovery after completion the treatment

Results and Discussion

These findings are similar with Rajadurai, *et al*. (2021) [8]. High levels of milk production have reportedly been translated to mean higher loss of calcium through milk and have hence led to higher occurrence of milk fever (Horst 1986) [5]. Dietary deficiencies as a result of poor ration formulation is the most probable cause of milk fever in this case. Therefore, farmers should be enlightened about proper ration formulations and provision of mineral supplements to their dairy cows. (Faez Firdaus *et al*. 2014). The incidence of milk fever reported in both the Jersey and Holstein herds during this study (7.98%) was within the 5% – 10% range reported by Houe *et al*. (2000) [4] and later by Roche and Berry (2006) [10]. In many studies, several predisposing factors have been suggested [Charbonneau E *et al*. (2006) [2] and Lean I J, *et al*., (2006)] [7]. In many countries, high priority has been given in detail to prevent milk fever. In addition, it has been proposed that a specific control program is relevant when the incidence of milk fever increases above 10% among high-risk cows [Hutjens MF, and Aalseth EP (2005)] [6]. Several milk fever control principles and control factors have been described in the database. Of these, oral drenching around calving with a supplement of easily absorbed calcium comes first, followed by feeding of acidifying rations by anionic salt supplementation during the last weeks of pregnancy [Hutjens MF, and Aalseth EP (2005)] [6]. Feeding low calcium rations during the last weeks of pregnancy and pre-partum administration of vitamin D were also among the most recommended measures. In our case, we encountered a stage two milk fever, which was typified by sternal recumbency and curving of the neck to the side. Stage one and two milk fever can be effectively treated by intravenous administration of calcium salts.

However, stage 3 milk fever is quite difficult to manage especially when muscle paralysis has ensured [Hutjens MF, and Aalseth EP (2005) [6], Allenstein LC (1993)]. Climatic conditions have been identified as possible factors influencing the incidence of metabolic disorders. The difference in the amount of UV radiation (Damgaard 1975) [3], average evaporation rate and the difference between maximum and minimum ambient temperature in Zimbabwe and other countries studied may significantly affect the frequency of milk fever.

Conclusion

Dairying in India is witnessing transformation from traditional production system to either semi-commercial or commercial production system, which requires high producing dairy animals. In this scenario, creating awareness among animal owners regarding low calcium diet and administration of Vitamin D injection before parturition, feeding the animal by calculating Dietary Cation- Anion Difference (DCAD) is essential to curtain the losses due to milk fever. It has been reported that about one in 20 affected cows, dies due to milk fever.

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