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## Hypocalcemia (Milk fever) in buffalo: A case report

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### Abstract

A 6 year old buffalo was presented with left lateral recumbency with the neck curved towards the flank. Buffalo had calved two months ago and was semi-intensively managed. The daily production of milk was about 13 litres. The temperature and pulse rate were within the normal range, but there was increase in respiratory rate and a dehydration status of 5%. Auscultation of heart revealed that there was decrease in intensity of the heart sound. The buffalo was diagnosed with milk fever and treatment was done by slowly infusing 400 mL of Calcium borogluconate into the jugular vein. Intravenous infusion of 2000 mL 0.9% NaCl and 1000 mL of 5% 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.

**Keywords:** milk fever, calcium, prognosis

### Introduction

Milk fever is a metabolic disease of mature dairy animal that occur just before or soon after calving. The clinical signs are muscle weakness, cold skin due to peripheral circulatory failure, small amplitude pulse, decreased intensity of heart sounds, lateral recumbency and drowsiness (Charbonneau *et al.*, 2006; Lean *et al.* <sup>[1, 2]</sup>. According to Horst *et al.*, 1997 <sup>[3]</sup>, the factors that contribute to occurrence of milk fever are parturition, stage of lactation, age, breed and diet. Roche *et al.* <sup>[4]</sup> stated that number of parity also play an important role in milk fever. Three stages of milk fever are recognized based on the clinical presentation of the animal. In stage one, the animal is able to stand but staggers due to weakness of the muscle. In stage two, it is on sternal recumbency with twisting or curving of the neck towards the flank, while in stage three, it suffers from paralysis leading to coma and death (Hutjens and Aalseth, 2005) <sup>[5]</sup>. Stages one and two are easily managed, while stage three may warrant culling of the animal. Milk fever is managed by a slow intravenous infusion of calcium borogluconate into the jugular vein. Lowering dietary calcium levels during dry period is very important for prevention of milk fever, as well as to balance the acid-base diet ratio; Dietary Cation-Anion Difference (DCAD) (DeGaris and Lean, 2009) <sup>[6]</sup>. High milk producing animals are more prone to milk fever due to the high demands in calcium, resulting to metabolic disease. The incidence of milk fever is higher during calving and can extend to the peak of lactation which is in week 6 to 8 post-partum (Hutjens and Aalseth, 2005) <sup>[5]</sup>. According to Anteneh *et al.*, 2012 <sup>[7]</sup>, cows that recover from milk fever are prone to other metabolic disease. Similarly, cows that have suffered from milk fever are more likely to develop the condition during subsequent calving (Allenstein *et al.*, 1993) <sup>[8]</sup>. The prognosis of milk fever depends on the stage of the condition; stage 1 is less severe and the animal is able to stand but staggering. In stage 2, the cow is recumbent on sterna recumbency, while in stage 3, there is progressive muscular paralysis that may lead to coma and death if prolonged (Hutjens and Aalseth, 2005) <sup>[5]</sup>. This report aims to highlight the management of type II milk fever in a cow.

### Diagnosis and Treatment

Physical examination showed the vital parameters were within the normal range. However, upon auscultation of the heart, there was a decreased intensity of the heart sound. The buffalo was on left lateral recumbency with the neck curved towards the right flank (S-shaped). There was 5% dehydration. The differential diagnoses were; milk fever, hypoglycemia and metabolic acidosis. A tentative diagnosis was made based on the history of the cow being high milk producing animal, inappropriate nutritional management and the presented typical clinical features of milk fever. Management of the case involved instituting Calciject 40 CM® containing calcium borogluconate, 400 mL slowly, intravenously in order to restore blood calcium level. Intravenous infusion of 2000 mL 0.9% NaCl and 1000 mL 5% Glucose was

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instituted with an aim to restore blood glucose level and to correct the dehydration.

### Discussion

Milk fever (Parturient paresis) is a disease of considerable importance for dairy animal welfare and economy. Although treatment with intravenous infusion of calcium salt solutions cure most clinical cases of hypocalcaemia, such animals are later more susceptible to other metabolic and infectious diseases (Curtis *et al.*, 1983; Curtis *et al.*, 1984) <sup>[9, 10]</sup>. In many studies, several predisposing factors have been suggested (Charbonneau *et al.*, 2006; Lean *et al.* <sup>[1, 2]</sup>). 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. 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 and Aalseth, 2005) <sup>[5]</sup>. 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.

### Conclusion

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.

### References

1. Charbonneau E, Pellerin D, Oetzel GR. Impact of lowering dietary cation-anion difference in non-lactating dairy cows: A meta-analysis., *J Dairy Sci* 2006;89:537-548.
2. Lean IJ, De-Garis PJ, McNeil DM, Block E. Hypocalcemia in dairy cows: Meta-analysis and dietary cation anion difference theory revisited., *J Dairy Sci* 2006;89:669-684.
3. Horst RL, Goff JP, Reinhardt TA, Buxton DR. Strategies for Preventing Milk Fever in Dairy Cattle., *J Dairy Sci* 1997;80:1269-1280.
4. Roche JR, Berry DP. Periparturient Climatic, Animal and Management factors influencing the Incidence of Milk Fever in Grazing System., *J Dairy Sci* 2006;89:2775-2783.
5. Hutjens MF, Aalseth EP. Caring for transition cows. *Hoard's dairyman Books. Illustrated* 2005, 17-21.
6. DeGaris PJ, Lean IJ. Milk Fever in Dairy Cows: A Review of Pathophysiology and Control Principles., *The Vet. J* 2009;176:58-69.
7. Anteneh S, Guadu T, Fentahun T, Chanie M. Incidence of Milk Fever on Dairy Cows and its Risk Factors in Gondar Town, Northwest Ethiopia. *Global Veterinaria* 2012;9(6):659-662.
8. Allenstein LC. Herd health. In: *Hoard's dairyman.*

*Illustrated. Hoards dairyman Books* 1993, 56-58.

9. Curtis CR, Erb HN, Sniffen CJ, Smith RD, Powers PA, Smith MC *et al.* Association of parturient hypocalcaemia with eight periparturient disorders in Holstein cows., *J Am. Vet. Med. Assoc* 1983;183:559-561.
10. Curtis CR, Erb HN, Sniffen CJ, Smith RD. Epidemiology of parturient paresis: Predisposing factors with emphasis on dry cow feeding and management., *J Dairy Sci* 1984;67:817-825.