

## PRELIMINARY OBSERVATIONS ON MILK FEVER IN PREGNANT NON-LACTATING DAIRY BUFFALOES

G. Muhammad and M. Zargham Khan

Faculty of Veterinary Science, University of Agriculture, Faisalabad-38040, Pakistan

### INTRODUCTION

The traditional concept of milk fever (hypocalcemia) conjures up a disease occurring shortly after calving in cattle and buffaloes. As a radical departure from this conventional notion, the present report describes the occurrence of this condition in 3 pregnant nonlactating buffaloes.

#### Case histories, clinical examination and treatment

On 26.8.1997, professional attention was drawn to treat a 7 year old Nili-Ravi non-lactating buffalo which was recumbent for the last two hours. The animal was pregnant for seven months and had ceased lactating 3 weeks earlier. It was being managed on sorghum plus concentrate and was in a moderate body condition. At the time of clinical examination, the animal was found in sternal recumbency with the neck turned towards its left flank. The temperature was subnormal (98.4° F) and the body was cold to touch. The ruminal motility was depressed and feces were in abeyance. The muzzle was dry. Auscultation of heart revealed faint but rapid heart sounds (86 beats/minute). The animal was somnolent. A clinical diagnosis of hypocalcemia was reached on the basis of signs (described above) compatible with those of milk fever (Hungerford, 1990; Radostits *et al.*, 1994; Yates and Hunt, 1990).

Treatment instituted comprised:

- a) 300 mL of Calcium borogluconate with dextrose, magnesium and phosphorus (Milfone - C; Star Labs. Lahore, Pak.) + 20 ml of vitamin B complex (Betaplex, Bantley Pharmaceutical Ltd. Pakistan) IV.
- b) Multi minerals-vitamin mixture (Super Milk Powder; Animal Health Products Ltd, Faisalabad) 50 gms. daily orally till term.
- c) grains (2 kg/day) plus ammonium chloride (60 g/day) for 7 days.

The buffalo responded to intravenous administration of Milfone-C in a standard fashion i.e. it regained control of its feet, became bright and alert, passed firm feces and started eating fodder after about 10 minutes. However, repeat attacks with signs similar to those

described above were observed, respectively on day 15, day 46 and day 68 post first attack. Treatment with Milfone-C on each of these occasions was met with instant response. Vit D and A (Cap. Adexolin; Glaxo Lab. Pakistan; 6 Capsules daily for 7 days) was prescribed on the 4th repeat attack observed on day 68 post first attack. The animal calved uneventfully on 25.11.1997 i.e., 3 months after the first attack. The calf was weak and the dam's milk yield was insufficient to meet the daily requirement of the newborn.

Two other similar cases were observed in nonlactating buffaloes pregnant for 7½ and 8 months respectively. These two animals required only a single intravenous administration of Milfone-C and there was no relapse of the disease.

### DISCUSSION

In dairy cattle, hypocalcemia (milk fever) occurs mostly after calving; prepartum occurrence being very rare. Of the rare prepartum cases, most occur in the last few days of pregnancy and during parturition. The occurrence of the disorder several weeks before calving is an extremely rare oddity (Radostits *et al.*, 1994) As far as could be ascertained, the prepartum occurrence of hypocalcemia has not thus far been described in dairy buffalo. Even in cattle, the dairy species which has received far more attention in research than dairy buffalo, there is no mention of prepartum hypocalcemia characterized by repeated relapses as observed in one of the buffaloes of the present report. The term milk fever seems technically inexact in as much as cases do occur (rarely through) among pregnant animals which are not lactating. We propose hypocalcemia as an alternative term to describe this disorder in lactating as well as nonlactating pregnant animals.

Nonparturient hypocalcemia in cattle can occur secondary to rumen overload, diarrhoea on lush pasture, oxalate rich diets, feed deprivation and transportation stress (Yates and Hunt, 1990). None of these factors was apparently causally associated with the occurrence of clinical hypocalcemia among the subjects of the present report. The daily calcium requirement during pregnancy in cow is approximately 10 grams/day. With parturition, an additional demand of

20-40 grams/day is imposed for milk production (Mullen, 1983). Most fodders (sorghum in the present cases) available in Pakistan are expected to supply surfeit amounts of dietary Ca during pregnancy. Therefore factors other than dietary Ca deficiency might have been involved in causing hypocalcemia in the nonlactating pregnant animals of the present report. Ammonia chloride was prescribed because this anionic salt has been shown to prevent milk fever in dairy cattle (Oetzel (1991); Oetzel *et al.*, 1988).

Calcium is actively absorbed by the small intestine to meet the daily requirements for maintenance and pregnancy drain/production. Hypocalcemia stimulates production of parathyroid hormone which then stimulates production of 1, 25-(OH)<sub>2</sub> D by the kidneys. 1,25-(OH)<sub>2</sub> D improves the efficiency of calcium absorption (Yates and Hunt, 1990). The repeated relapses of hypocalcemia at variable intervals in one of the three buffaloes of the present report may be attributed to the failure of the kidneys to produce 1,25-(OH)<sub>2</sub>D (Goff *et al.*, 1989).

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