



A case study on therapeutic management of a cross-bred downer cow



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Abstract

A five year old cross bred cow, 24 hours post calving was presented to Teaching Veterinary Clinical Complex (TVCC), Pookode, with the history of recumbency 24 hours post calving. The serum biochemical parameters of calcium, phosphorus and potassium on the first day of presentation were 7.93 mg/dL, 3.82 mg/dL and 3.67 mEq/L, respectively. Tentatively the condition was diagnosed as downer cow with metabolic origin. The cow was treated with calcium borogluconate, flunixin meglumine and inj. Vitamin B₁, B₆, B₁₂, sodium acid phosphate, vitamin ADE, Selenium, Biotin liquid for 7 days. Along with this, potassium chloride was administered for two days. The supportive treatment was done with lifting of cow using cow sling. Sand bedding was provided along with physiotherapy of rolling of the recumbent cow alternate ways six times a day. The serum biochemical parameters became normal on 8th day and the cow recovered by 13th day.

Key words: Downer cow, cow sling, Potassium Chloride

Downer cows are the cows which are recumbent for more than 24 hours (Constable *et al.*, 2017). Delay in treatment and management results in pressure induced myositis and neuritis, and leads to poor prognosis. A case of successful recovery of a cross bred downer cow is reported. The cow was presented to TVCC, Pookode, 24 hours post calving with a history of sternal recumbency, crawling on forelimbs and inability to stand. The cow was able to hold its head up, exhibited wagging of tail with perineal response (Van Metre *et al.*, 2001). No musculo-skeletal abnormalities were observed on physical examination. The cow was alert and clinical examination

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revealed normal temperature (100.9° F), respiration (24/minute), rumen motility (2/5 minutes), elevation of heart rate (86 beats / minute). Haematological parameters viz:- Total erythrocyte count (TEC) 8.77×10^6 / μ L, total leukocyte count (TLC) 9.3×10^3 / μ L, different leukocyte count (DLC) viz:- granulocyte 24 per cent, monocyte six per cent and lymphocyte 70 per cent, haemoglobin (Hb) 10.89 g/dL and packed cell volume (PCV) 26.3 per cent respectively. Serum biochemical parameters viz :-calcium (7.93 mg/dL), phosphorus (3.82 mg/dL) and potassium (3.67 mEq/L) were below the normal. Muscle weakness might have been due to reduced calcium which resulted in recumbency leading to downer cow syndrome. Hypophosphatemia may be due to increased activity of parathyroid hormone and loss of phosphorus through milk. Hypokalemia might be attributed to reduction in the resting potential of cell membrane which resulted in decreased excitability of neuromuscular tissue and muscle weakness (Radostits *et al.*, 2007).

The cow was treated with 225 ml of 25 per cent calcium borogluconate as slow IV, once daily for two days (Constable *et al.*, 2017), potassium chloride @ 120 gm twice daily orally for three days (Constable *et al.*, 2013 ; Beder *et al.*, 2020), flunixin meglumine @ 1.1 mg/ kg body weight once daily IV, for three days (Jesse *et al.*, 2016) and Inj. vitamin B₁, B₆ and B₁₂ -15 ml daily IV, sodium acid phosphate @ 60g, orally once daily and supportive treatment by vitamin ADE, Selenium, Biotin liquid @ 10 ml orally, once daily for seven days. Soft bedding was provided with sand and the animal was lifted using cow sling once daily. The recumbent cow was rotated alternatively six times a day, the skin wounds due to recumbency were cleaned daily and herbal wound healing ointment was applied locally. Green grass, dairy cattle feed, drinking water were provided as per requirement of the animal. Physiotherapy was given with body massage to improve the blood circulation and neurological reflexes (Huxley *et al.*, 2010). During the course of treatment, the cow was milked twice daily. The animal recovered eventually on 13th day, similar observation was reported by Poulton *et al.*, 2016.



Fig: 1 Downer cow on sling

Summary

In this study, the post-parturient downer cow with reduced serum calcium, phosphorus, potassium was treated with calcium borogluconate, flunixin meglumine @ 1.1 mg/ kg body weight i/v for three days, Inj. Vitamin B₁, B₆, B₁₂, sodium acid phosphate and vitamin ADE, Selenium, Biotin liquid for 7 days and potassium chloride for two days along with the routine physiotherapy, lifting the cow and massaging which made the animal to stand on its feet on 8th day. The serum calcium, phosphorus and potassium increased to be back to normal level and the cow recovered on 13th day.

It was concluded that while attending a recumbent cow without delay, with accurate diagnosis and appropriate treatment along with the supportive care such as physiotherapy, providing soft bedding with sand, changing recumbency posture by turning and lifting the animal daily using body sling with support to stand would result in complete recovery.

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