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Treatment of milk fever in dairy cow

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Abstract
Increase in risk of metabolic diseases are more in dairy cattle specially during transition period from 4 month before parturition to 4 months after parturition. In animal body metabolic alterations occurs to fulfill the demand of milk production. Most of the minerals homeostasis specially of calcium changes due to secretion of lots of body calcium into the milk which leads to deficiency of calcium in animal body that is characterized by hypocalcemia. A high yielding, indigenous cow of 6 years of age with third parity parturated 1 day before presented to TVCC, Bikaner with history of ataxia, poor appetite, sternal recumbency, inhibition of passing urine and dung. Body temperature was low (99.8 F). Based on history, Clinical signs the case was suspected of hypocalcemia and treated with calcium borogluconate intravenously (slow), supportive therapy (Fluids and Multivitamin). Cow recovered after treatment.

Keywords: Milk fever, cow, hypocalcemia, calcium borogluconate

Introduction
Milk fever is one of the most common and complex metabolic disease of high producing dairy cattle that occur after and soon parturition (Transition period). It is characterized by hypocalcaemia, Sternal recumbancy, inhibition of urination and defecation, low temperature, low respiration, later on lateral recumbency, coma and death. It is economically important disease, it reduce milk yield and fertility. Calcium is the most important macromineral in terms of relative requirement and the diversity in animal body. Circulatory calcium deficit in the plasma pool with sudden excess loss of Ca in milk of high yielder parturient cows is mainly attributed to milk fever (Radostitis *et al.*, 2007) [3] High producing cattle are more affected with the milk fever, a metabolic condition (Adams *et al*., 1996). After parturition increase in demand of calcium for milk production cause decrease in serum calcium level known as milk fever or hypocalcemia, parturient paresis, or eclampsia. Homeostasis of calcium is regulated by calcitonin, parathyroid hormone and 1,25 (OH)(2) vitamin D3.Increase in age is related with increase in risk of occurrence of milk fever. Pre-calving diet low in Ca helps in preventing the development of milk fever and diets high in anions (chlorides and sulphur) and low in cations (sodium and potassium) decreases the occurrence of milk fever.

Case history
An indigenous high yielding cow of 6 years of age presented to TVCC, Bikaner with the history of ataxia, poor appetite, sternal recumbency, Cold extremities, inhibition of passing urine and dung. Cow calved 1 day before and placenta was expelled out normally after 18 hrs. of parturition. The parity of the cow was third.

Clinical examination
Clinical examination revealed low temperature (99.8F). Normal mucus membrane, low respiration, low ruminal motility, inability to stand, Low reflexes and cardiac sounds were dull on auscultation with 78 beats /min.

Sampling
Blood sampling was done for complete blood count and serum Calcium and phosphorus.

Laboratory examination
There was no any change in blood parameters all were in normal range (Hb-10.2 gm %,TEC-5.8, PCV-32.4%, TLC-8200) But the serum calcium and phosphorus was low as compared to standard values for cattle as mentioned in table 1.

Table 1: Result of blood/serum analysis

Parameters	Observed value	Reference range
Hemoglobin (g/dl)	10.2	9-12
Total Erythrocyte Count (10^6/cumm)	5.8	4-8
Packed Cell Volume (%)	32.4	24-46
Total Leucocyte Count (10^3/cumm)	8.24	4-12
Calcium (mg/dl)	7.2	9.7-12.4
Phosphorus (mg/dl)	5.3	5.6-6.5

Diagnosis

Case was diagnosed as milk fever based on history from owner of recent parturition and high yielding with third parity, clinical signs and laboratory investigations of low serum calcium**.**

Treatment and Discussion

Treatment was mainly focused on increasing the serum calcium level immediately and that can be done by giving calcium by intravenous route (High and fast absorption rate). Milk fever cattle was treated with 500ml 25% calcium borogluconate intravenously with some supportive therapy by infusing DNS 5%, 1 liter, IV, inj. Tribivet 10 ml, IV and inj. Avil 10ml, IV. Also advice the Owner to give Jaggery to the cow daily for 3 days. Immediately after infusion of calcium the cow was able to stand without any assistance. Cow showed normal behavior. Cow was in stage II of milk fever having sternal recumbency and low temperature, low reflexes (Kahn, 2005) [1]. In milk fever cases there is instant need of increasing the serum calcium level and that can be done by giving intravenous calcium (Smith, 2009) [4]. Administration of calcium should be done @ 2g/100 kg BW, IV and half of the dose may be given subcutaneous for treatment (Miltenburg *et al*., 2016) [2].

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