



Unit : Hypocalcemia In Cattle
Lesson : 3

Third stage Milk fever

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Clinical Findings

Stage 3 (Lateral Recumbency)

- Lateral recumbency
- Comatose
- Limbs- flaccid, unable to getup
- Pulse- impalpable
- ↓ed temperature
- Unable to raise the vein
- Bloat
- Animal dies within 12-24hrs
- if not treated





Concurrent ailments

- Hypomagnesemia
- hypophosphatemia
- Hypokalemia
- Ketosis
- Mastitis
- Downer cow

Clinical pathology



Parameter	Values in milk fever	Normal values
Serum calcium	<ul style="list-style-type: none"> • 2.0 mmol/L (8 mg/dL) • Usually to below 1.2 mmol/L (5 mg/dL), • Sometimes to as low as 0.5 mmol/L (2 mg/dL). 	8.4 to 10.2 (mg/dl)
Ionized Ca	<ul style="list-style-type: none"> • Slight hypocalcemia- 1.05 to 0.80 mmol/L (4.2 to 3.2 mg/ dL); • Moderate, 0.79 to 0.50 mmol/L (3.2 to 2.0 mg/dL); • Severe hypocalcemia, less than 0.50 mmol/L (<2.0 mg/dL) 	0.06 to 1.26 mmol/L (4.3 to 5.1 mg/dL)
Serum magnesium	<ul style="list-style-type: none"> • Moderately elevated to 1.65 to 2.06 mmol/L (4 to 5 mg/dL) 	1.9 to 2.6 mg/dl



Clinical pathology

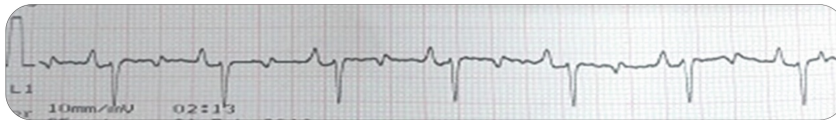
Parameter	Values in milk fever	Normal values
Inorganic phosphorus (Pi)	Depressed to 0.48 to 0.97 mmol/L (1.5 to 3.0 mg/dL)	4.6 to 4.7 mg.dl
Blood glucose	<ul style="list-style-type: none"> • Normal, although they may be depressed if ketosis occurs concurrently • Higher-than-normal - cases of long duration 	40 to 60 mg./dl
Creatine kinase (CK)	<ul style="list-style-type: none"> • Increased 	35–280 (units/L)
Aspartate aminotransferase (AST)	<ul style="list-style-type: none"> • Increased 	78–132 (units/L)
Hemogram	<ul style="list-style-type: none"> • Eosinopenia, neutrophilia, lymphopenia 	



ECG



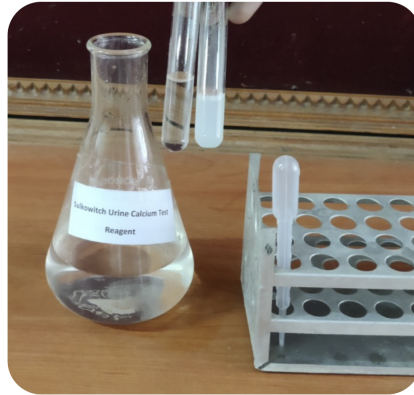
Prolonged QT interval



Sulkowitch test

Evaluation

- -/+ - No Ca^{2+} / hypocalcuria, most probable hypocalcaemia
- ++ - Normocalcuria, hypocalcaemia rare
- +++ - Normo/hypercalcuria, hypocalcaemia can be excluded.





Differential diagnosis

- Downer cows following milk fever
- Carbohydrate engorgement
- Hypomagnesemia (lactation, grass tetany)
- Severe toxemia (acute diffuse peritonitis, coliform mastitis)
- Fat-cow syndrome
- Injuries to the Pelvis and Pelvic Limbs
- Degenerative Myopathy (Ischemic Muscle Necrosis)



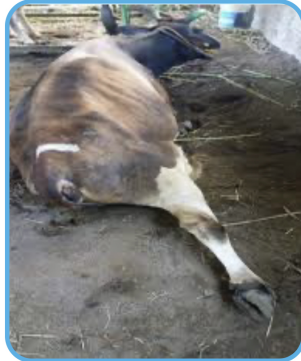
Differential diagnosis



Downer cow syndrome



Pelvic fracture



Degenerative myopathy



Obturator nerve paralysis



Fatty cow syndrome



Thank you