



Unit : Ketosis

Lesson : 4

Clinical Findings & Clinical Pathology of Bovine & Ovine Ketosis

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Wasting form

- **Most common**
- **Decreased appetite and milk yield over 2 – 3 days**
- **Cow refuse to eat grain but continue to eat hay**
- **Body weight rapidly loss**
- **Woody appearance**
- **Disappearance of subcutaneous fat**
- **Firm and dry feces**
- **Depressed**
- **Declination to move and eat**
- **Sweet odor in breaths**

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Nervous form

- **Delirium rather than frenzy**
- **Walking in circle**
- **Crossing of legs**
- **Head pushing**
- **Apparent blindness**
- **Aimless movement and wandering**
- **Vigorous licking of skin**
- **Chewing movement and salivation**
- **Hyperesthesia**
- **Bellowing**
- **Tremor or tetany**

Pregnancy Toxemia

- Separation from the group
- Failure to come up for feeding
- Apparent blindness
- Constipation feces are dry and scanty
- Grinding of the teeth
- Nervous signs – tremors of the muscle of the head, twitching of the lips champing of jaws, salivation



- **Cog wheel type of clonic contractions of the cervical muscles**
- **Dorsiflexion and lateral deviation of head**
- **Circling, tonic clonic convulsions**
- **Abnormal posture, stargazing posture, incoordination, falling**
- **Recumbency in 3-4 days**
- **Profound depression**
- **Difficulty in lambing**
- **Recovery after lambing**

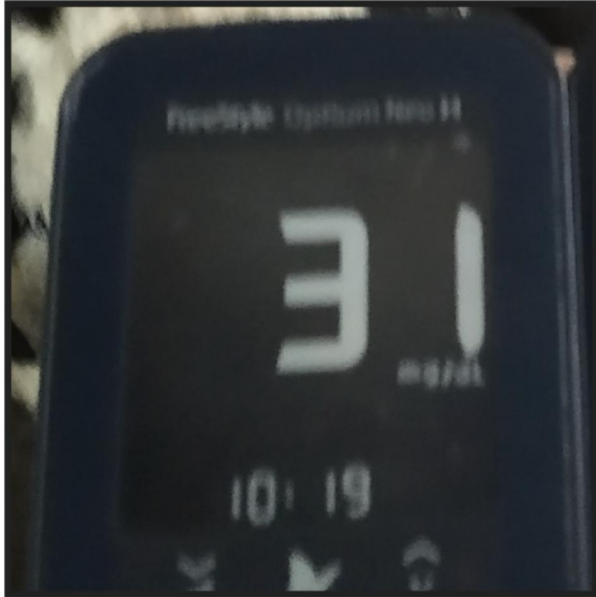




Star Gazing Posture – Pregnancy Toxemia

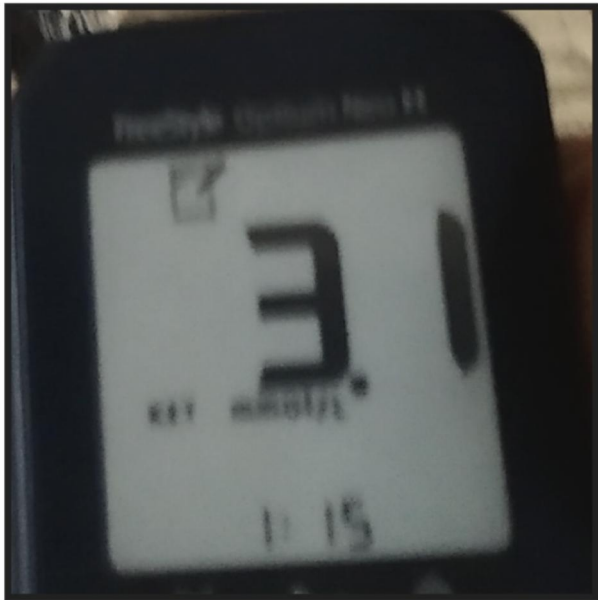


Hypoglycemia – Glucometer Value





Ketonemia – Ketometer



Clinical Pathology

- Hypoglycemia
- Ketonemia
- Ketonuria

Glucose

- Reference range – 50 -65 mg/dl
- Ketosis – 20 -40 mg/dl
- Secondary ketosis - hyperglycemia

Clinical Pathology

→ Ketones

BHB – less than 1.0 mmol/L

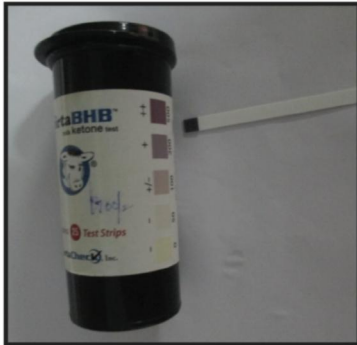
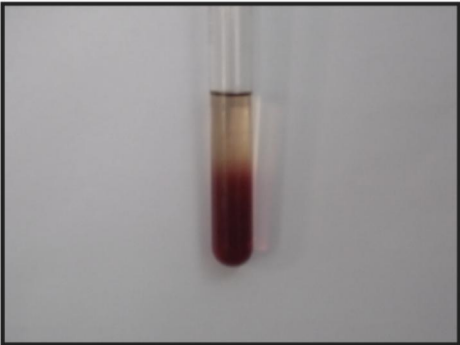
Clinical ketosis – more than 2.5 mmol/L

Milk and urine ketone concentrations - detected by reaction of acetoacetate with Sodium nitroprusside.

Sodium nitroprusside reaction more sensitive with acetoacetate than acetone.

Acetone only detectable when concentration greater than 600 mmol/l

Sodium Nitroprusside Test (Rothera's Test)





Sheep and Goat

- **Hypoglycemia**
- **Ketonemia**
- **Ketonuria**
- **Serum BHB - >3.0mmol/L**
- **Metabolic acidosis**
- **Terminal uremia**
- **Abnormal liver function tests**
- **Elevated plasma cortisol level >10ng/ml**



Milk Fat to Milk Protein ratio

- Fat to protein ratio greater than 1.5
- Serum biochemistry:
 - Elevated NEFA**
- Elevated total bilirubin
- Decreased plasma cholesterol
- Low plasma cortisol concentration



Diagnosis

- **History**
- **Clinical signs**
- **Biochemical examination**
- **Ketonemia and ketonuria are necessary to establish the diagnosis**



Differential Diagnosis

- **Wasting form**
- **Abomasal displacement 'TRP**
- **Primary indigestion**
- **Cystitis and pyelonephritis**
- **Diabetes mellitus**





Differential Diagnosis

- **Nervous form**
- **Rabies**
- **Hypomagnesemia**
- **Bovine spongiform encephalopathy**





Sheep

- **Diagnosis**
- **Clinical signs**
- **Should be differentiated from**
- **Listeriosis**
- **Cerebral abscess**
- **Rabies**





Thank you