

SUB-ACUTE RUMINAL ACIDOSIS
(SARA)
A Herd Problem

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HISTORY

- 390 cows of different age groups.
- Mortality was seen among the age group was more than 7 months.
- Affected 6 animals have died.
- Signs of ataxia, staggering gait, sudden recumbency.
- I/v fluids (glucose, calcium) & B complex inj were administered.
- PM revealed pneumonia.

CLINICAL EXAMINATION

- Ailing animals (8) were clinically examined had,
 - Normal vital signs
 - Pink Conjunctival Mucous Membrane
 - Palpation of rumen - atony
 - Dung - Hard
 - Palpation of hoof - exhibited pain
 - Staggered & unable to stand after release of casting.
 - Blood, Urine & Rumen fluid were collected.

RESULTS: Urine Analysis

S. No.	Parameter	Result
1.	Physical Examination Colour Transparency Reaction Specific Gravity	Pale Yellow Clear Acidic (6.8 pH) 1.020
2.	Chemical Examination Albumin Sugar Ketones Bile Salts Bile pigments Urobilinogen	Nil Nil ---- Negative Negative -----
3.	Microscopic Examination Pus Cells Epithelial Cells RBCs Cast Crystals Others	1-2 / h.p.f 1-2 / h.p.f Nil Nil Nil Nil

RESULTS: Bio Chemical Profile

S. No.	Parameter	Result
1.	Serum Creatinine	1.1 mg/dl
2.	Serum calcium	9.7 mg/dl
3.	Serum Phosphorous	11.3 mg/dl
4.	Serum Magnesium	1.8 mg/dl
5.	Serum Glucose	69 mg/dl
6.	Serum Bilirubin	0.6 mg/dl
7.	Serum Protein	6.2 mg/dl
8.	Serum Albumin	4.1 mg/dl
9.	Serum Globulin	2.1 mg/dl
10.	SGPT	108 U/I
11.	SGOT	635 U/I
12.	Alkaline Phosphatase	186 U/I

Rumen Fluid Analysis

S. No.	Parameter	Result
1	Colour	Greenish grey
2	Odour	Acidic
3	Consistency	Thick
4	pH	5.3
7	Protozoan activity	Nil
8	Protozoan concentration/LPF	+

SYNONYMS

- Chronic acidosis.
- Sub-clinical acidosis.

DEFINITION

- SARA is a group problem and is a disorder of ruminal fermentation that is characterized extended periods of depressed ruminal pH below 5.5 to 5.6 (N-6-6.4).

ETIOLOGY

- Transition period.
- Diet - high grain low fiber diets that maximize energy intake during early lactation.
- Rapid or abrupt introduction of fresh cows to high concentrate diet.

PATHOGENESIS

- Ruminal epithelial cells are not protected by mucous so they are vulnerable to chemical damage by acids.
- Low ruminal pH leads to ruminitis, erosion & ulceration of epithelium.
- Bacteria may colonize the papillae and leak into portal circulation.
- They may colonize in the lungs, heart valves, kidneys or joints.
- SARA associated with laminitis, subsequent hoof overgrowth, sole abscess and sole ulcers.

CLINICAL SIGNS

- Loose feces containing undigested grain and long fibers.
- Excessive fecal soiling of the tail, udder and hind quarters.
- Tail swishing in the absence of flies.
- Individual cows exhibit anorexia with no other obvious signs.
- Dropping the cud.
- Reduced milk yield and butter fat.
- Excessive loss of body condition in early lactation.
- Increased number of cases of digestive & metabolic disorders.
- Increased incidence of foot lameness.
- Cows look dirty and rough coated.

CLINICAL PATHOLOGY

- Milk fat percentage - butter fat $< 2.5\%$.
- Fat protein ratio - < 1 .
- Fecal sieving - Fecal fiber > 1.25 cm in length.
- Rumenocentesis - 30% of the cows have pH ≤ 5.5

DIAGNOSIS

- History
- Clinical signs
- Clinical pathology

TREATMENT

- SARA is not detected at the time of depressed ruminal pH so there is no specific treatment.
- Secondary conditions may be treated as needed.

PREVENTION

- Sufficient long fiber in the diet (2.5 cm in length maximum 10 cm).
- Avoid overfeeding of concentrates (3-4 kg at a time) and distribute concentrate feeds.
- Avoid overfeeding of starches and sugars (max of 25% in the diet).
- Avoid over mixing of TMR diet.
- Maximize DM intake by ensuring adlib forage.
- Addition of 0.5 - 1 kg DM of straw is beneficial.
- Provide good cow comfort.
- Feeding of buffers.

Thank you

