Signalment: 1 year old Angus steer

Animal was from a herd of 30 from south Georgia.

Herd recently experienced two losses following the addition of a new feed ration.

Affected animals appeared blind, followed by recumbency.

Oxytetracycline given with no response to treatment.

This animal presented to the Tifton Veterinary Diagnostic and Investigational laboratory for necropsy.
Clinical Pathology and Gross Findings

• Hematology:
  • Elevated WBC count: 21600/μl
  • Neutrophilia: 16000/μl and monocytosis: 1200/μl
  • Fibrinogen: 700 mg/dl

• Serum Chemistry:
  • Creatine kinase (CK): 6293 U/L
  • Aspartate aminotransferase (AST): 301 U/L
  • Blood Urea Nitrogen (BUN): 30 mg/dl

• Gross Necropsy:
  • Animal was in good body condition with no significant findings.
Histopathology – Brain

• Brain
  • Necrosis and vacuolation of the cerebral cortical grey matter; from the deep cortex often extending to the superficial layers.
  • Prominent cortical vessels.
  • Mild perivascular histiocytic inflammation involving cortical and meningeal vessels.
  • Occasional hemorrhage into the neuropil.
Other histopathologic changes
Morphologic Diagnoses

• Necrosis, cerebrocortical, laminar, acute to subacute, moderate with mild perivascular histiocytic inflammation, brain.

• Additional diagnoses (not submitted)
  • Enterocolitis, eosinophilic to lymphocytic-plasmacytic, chronic, multifocal, mild to moderate, small intestine and colon.
  • Tubular necrosis, acute, multifocal, mild, kidney.
  • Hepatic necrosis, acute, focal, mild, liver.
Toxicology

- Sulfur levels in feed:
  - 7764 ppm/0.77%; consistent with toxic levels.

- Lead:
  - Liver levels were within normal reference range (<1 ppm).

- Final interpretation:
  - Sulfur-induced polioencephalomalacia
Polioencephalomalacia in Ruminants

- Pattern of ischemic necrosis involving the cortical grey matter of the brain.
- Common etiologies:
  - Sulfur (e.g. *Brassica* plants, molasses, sugar beet pulp, ground water sulfates).
  - Lead
  - Thiamine deficiency (e.g. due to bracken fern, thiaminase producing bacteria).
  - Salt toxicosis
Acknowledgments

- Histology and Necropsy Sections at the UGA-TVDIL

- Breathitt Veterinary Center - Murray State University

- Murray E. Hines II
Questions
References:


