

Animal Disease Diagnostic Laboratory

Necropsy Services

GROSS REPORT

A 1.7 kg, 3 week old, black and white, male goat kid is necropsied from Gotm' Broke Farm. The body condition is fair with adequate adipose tissue and moderately decreased musculing, such that the pelvic tuberosities and vertebral spinous processes are readily palpable. Soft tan feces are adhered to the ventral aspect of the tail and the perineum, and a large amount of bright pink liquid is on the lips and within the oral cavity (presumptive bismuth salicylate). The tissues and subcutis are diffusely tacky (dehydration). The urinary bladder is distended with 100 ml of clear urine and the urethra is normally patent.

Gastrointestinal tract: The rumen and abomasum are severely distended with copious amounts of bright pink material admixed with moderate amounts of milk curd and small particles of hay. The forestomachs are transmurally stained bright pink. The pylorus is patent and the intestines and colon contain moderate amounts of watery yellow to tan digesta.

Kidneys: The left kidney has multifocal white, round foci subcapsular that extend throughout the cortex to the pelvis (3 mm diameter to 3 x 5 mm).

Tissues in which significant lesions are not detected are tongue, thyroid gland, oral cavity, brain, pituitary gland, larynx, pharynx, trachea, esophagus, lungs, heart, diaphragm, liver, gall bladder, spleen, adrenal glands, pancreas, testicles, urinary bladder, skeletal muscle, bone marrow, and integument.

GROSS DIAGNOSES:

1. Ruminal and abomasal distention, severe with large amounts of bismuth salicylate
2. Cortical necrosis (presumptive), multifocal, acute, severe, left kidney
3. Diarrhea, chronic, severe

COMMENTS: Reported treatment with bismuth salicylate for diarrhea may have caused ruminal and abomasal distention, and may also have led to metabolic derangement. Bismuth toxicity causes alterations in the Krebs cycle that lead to deficiency of ATP, producing ketoacidosis. Most animals die of severe metabolic acidosis, respiratory alkalosis, dehydration, and eventual CNS derangements that include weakness, tremors, and coma. Knowing the dosage and duration of bismuth treatment would be helpful in determining if this goat indeed had excessive exposure to the drug. A specific cause for diarrhea is not detected grossly.

WORK PENDING: Histopathology, Parasitology

HISTOPATHOLOGY REPORT

Tissues have moderate amounts of freeze and thaw artifacts such that cellular details are disrupted.

Kidneys (3 sections): Multifocal tubules within the cortex and medulla are distended with dense aggregates of neutrophils and eosinophilic cellular debris, and lined by moderately attenuated cuboidal epithelium. Multifocal collecting ducts within the medulla are similarly distended with neutrophils. The interstitium is multifocally infiltrated with monocytes, which mildly displace the tubules. Moderate numbers of tubules contain eosinophilic granular casts.

Intestines (6 sections): The villi are multifocally blunted and wide. The mucosal brush border, and rafts of sloughed epithelial cells have numerous darkly basophilic, cryptosporidial organisms attached (5µm in diameter). The lamina propria is moderately infiltrated with clear material (edema fluid) and the blood vessels are moderately congested diffusely.

Esophagus (1 section): The epithelium is mildly elevated by moderate numbers of neutrophils.

Tissues in which significant lesions are not detected are brain and meninges (6 sections), pituitary gland (1 section), tongue (1 section), thyroid gland (2 sections), trachea (1 section), thymus (2 sections), lungs (3 sections), heart (3 sections), spleen (1 section), liver (2 sections), adrenal glands (2 sections), urinary bladder (1 section), mesenteric lymph nodes (2 sections), testicle (1 section), epididymis (1 section), skeletal muscle (1 section), and bone marrow (1 section).

HISTOLOGIC DIAGNOSES:

1. Nephritis, multifocal, suppurative, acute, severe
2. Cryptosporidiosis and enteritis, segmental, subacute, severe
3. Esophagitis, superficial, suppurative, mild

COMMENTS: The cause of severe diarrhea and dehydration is likely infection with cryptosporidium. Suppurative nephritis speculatively may be secondary to excessive oral doses of bismuth salicylate, which can result in severe metabolic acidosis and additional dehydration, which may culminate in renal hypoxia and nephritis and, eventually, renal failure.

Parasitology-

Fecal Floatation			
Animal	Specimen	Result	Isolate
No I.D.	Feces	Few	Cryptosporidium

SUMMARY REPORT

The cause of diarrhea and dehydration is cryptosporidial enteritis. Additionally, this kid has suppurative nephritis that is most likely due to metabolic acidosis and toxicity from bismuth sulfate oral treatments.