

University of Washington
National Primate Research Center

Accession # 20-079
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DIAGNOSTIC LABORATORY NECROPSY REPORT

Requester _____ Colony _____ Investigator _____ Colony _____ Animal ID # Z17260
Species MN Requester's Phone (206) 616-0501

Date of Death 04/25/2020 Date of Necropsy 04/25/2020 Time 0500 Pathologist CM

Nutritional Condition: Adequate Marginal Poor Obese

Other Tests Required: Sero Micro Parasit Other _____

Other Diagnostic Samples _____

Type of report: Final 22 May 20 Preliminary _____ Gross _____ Amended _____

Clinical History:

Z17260 presented 4/21/20 for severe weight loss, dehydration, and diarrhea. Animal had decreased in weight by 780 grams from previous weight on 3/23/20. Animal was ~12%-15% dehydrated, weak, and BCS was 1-1.5/5. Body temperature was low (97.3F) and active warming commenced. The remainder of exam was unremarkable. The animal was started on fluid therapy, antibiotics, steroids, anti-emetics, NSAIDs, and GI support.

On 4/23/20, the animal was reported for dehydration and depressed mentation. Upon examination, animal was QAR, weak, hunched, and remained severely dehydrated. Liquid feces were present in her enclosure. Initially, her body temperature was unable to register on a rectal thermometer (per the package meant below 89.0 F). Active warming commenced. Critical care ensued with fluid therapy, antibiotics, potassium, anti-emetics, and steroids. Overnight care commenced.

On 4/24/20, there was no significant change to the animal's condition. The animal was moved into a nursery isolette for closer monitoring and thermal support. Critical care was aimed at maintaining hydration and temperature, providing nutrition (gavage), IV antibiotics, steroids, and anti-emetics. The animal spent most of the day and night sleeping. No appetite was present. Chemistry and electrolyte tests revealed results consistent with the clinical presentation (unable to collect enough blood for CBC). Copious amount of tan liquid feces was excreted throughout the day. Overnight care continued.

On 4/25/20 at 4am, the animal was found deceased by the overnight care technician.

Gross Description:

Examined is a 2.5 kg, 2 year old, female pig-tail macaque in poor body condition. No autolysis was present.

Thoracic cavity: No free fluid was found in the thoracic cavity and the diaphragm was intact. The lungs were pale-pink and all sections floated in formalin. The heart appeared normal in size. The ventricles appeared subjectively thickened (measurements not taken).

Abdominal cavity: No free fluid was present in the abdominal cavity. The liver appeared normal in size and color. The gallbladder was empty. The spleen and pancreas were both normal. Both kidneys were normal in size; adrenal glands appeared normal. The urinary bladder had minimal urine present. The stomach was adequately sized and was empty of digesta. The entire length of the GI tract was pale/white, moderately to severely gas-distended, and fluid feces was present throughout. Mesenteric lymph nodes were enlarged.

Gross Diagnosis(es):

1. suspect severe GI infection with possible sepsis

Histological Findings:

The GI tract has extensive and often effacing, near-diffuse, lamina propria deposition of amyloid and with extensive small intestinal villar blunting and fusion. Also, throughout the stomach, small and large intestine there is mild to moderate, diffuse, lamina propria infiltrate of/increase in lymphocytes, plasma cells, macrophages and eosinophils. Large intestine also has multifocal, extensive, erosion to ulceration of mucosa with superficial to luminal suppuration and fibrinosuppurative crusts, and with underlying submucosal moderate to extensive pyogranulomatous inflammation, and also multifocal, transmural, moderate to extensive granulomatous and fibrosing infiltrate with transmural lymphoid follicle formation. There also are moderate numbers of crypt abscesses, and small intestine has multifocal, moderate suppuration with some small ulcers.

Liver has extensive, diffuse sinusoidal amyloid deposition with effacement of parenchyma, and there also is mild, multifocal lymphohistiocytic infiltrates.

Spleen has extensive follicular amyloid deposition. Lymph nodes have moderate, multifocal amyloid deposition in follicles, and spleen and nodes have moderately extensive lymphoid depletion.

Adipose has multicentric, extensive depletion including pericardial (essential) adipose, and pancreas has moderate, multifocal zymogen depletion.

Sections of heart, kidneys, lungs, muscle (small focus of granulomatous interstitial inflammation and myocellular degeneration – likely an injection site), gall bladder, and skin with mammary gland are unremarkable besides stated minor changes.

Final Principal Diagnosis(es):

1. Extensive, multicentric, gastrointestinal, hepatic, lymph node and splenic amyloid deposition: **“Systemic secondary amyloidosis”**
 2. Severe, multifocal, ulcerative and transmural, fibrinosuppurative to fibrosing and granulomatous colitis (**“cicatrizing colitis”**)
 3. Extensive, multicentric adipose depletion with moderately extensive, multicentric lymphoid depletion and multifocal, moderate pancreatic zymogen depletion
 4. Mild to moderate, diffuse, lymphocytic, plasmacytic, histiocytic and eosinophilic gastro-enterocolitis with extensive enteric villar blunting and fusion
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Histology Comments:

The amyloidosis is secondary amyloidosis: secondary to mis-metabolism of acute-phase reactive proteins from a site(s) of chronic inflammation. The site of chronic inflammation potentially inducing amyloidosis in this case was the GI tract (diagnoses 2 and 4). The degree of GI amyloid deposition was causing malabsorption, and diagnosis #3 (inanition) is probably mostly due to consequences of malabsorption. Additionally, the lymphoid depletion suggest immunosuppression, and this is a secondary consequence of inanition.

Cicatrizing colitis is a relatively common, idiopathic condition in macaques. Chronic bacterial colitis is a commonly speculated cause of the condition. Common causes of bacterial colitis include *Campylobacter*, *Yersinia*, *Shigella* and *Salmonella* sp. This condition was also contributing significantly to inanition.

Diagnosis #4, which can cause diarrhea and potentially other sequelae thereof (including systemic secondary amyloidosis), represents typical changes in this species in this colony, and they have been previously discussed. These changes are consistent with food allergy/hypersensitivity/dietary intolerance/IBD.

Please contact me with any questions, comments, concerns.

Pathologist CMM (gross)/RM (histo)