**HISTOPATHOLOGY REPORT**

Request Date: 10/5/16

Pathologist: MJH

Returned Date: 10/21/16

**In Vivo Animal Core (IVAC)**

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**Case number:** 16R150

**Species:** MUM

**PI:** Bridges

**Contact:** Bridges

**History**

Seven mice were submitted for histopathologic examination from an aging study. The investigator is interested in determining cause of death. Carcasses were stored in formalin, whole, for three years prior to submission.

**RESULTS** (descriptive)

Sections of lungs, heart, liver, spleen, kidneys, mesenteric lymph nodes, adrenal glands, pancreas, stomach, small intestine, cecum, colon reproductive tract, and bone marrow (sternum) were collected for histopathology where able. All tissues were moderately to markedly autolyzed, interfering and precluding histologic interpretation in many tissues.

Animal 169:

Grossly, there was a mass attached to the stomach, and a mass along the serosal surface of the left kidney. Histologically, in sections of pancreas, there were multiple, variably sized nodules adjacent to lobules of exocrine pancreatic parenchyma. Similar nodules were observed at the base of the heart, within the peri-prostatic tissues, adjacent to the kidney, and adjacent to the duodenum/stomach. These tumors were markedly autolyzed, but appeared to be composed of sheets of round cells, although their exact character could not be determined based on the extent of autolysis. In sections of liver there were multifocal small foci of hepatocellular loss with replacement by irregular telangiectatic spaces lined by plump endothelial cells.

Morphologic diagnoses:

1. Pancreas, kidney, heart, prostate, duodenum (presumptive lymph nodes): suspect disseminated lymphosarcoma.
2. Liver: suspect hemangiosarcoma.

Animal 336:

No significant findings. Severe autolysis of tissues precluded histologic interpretation.

Animal 337:

The abdomen of this animal was not opened prior to previous fixation. The spleen was diffusely enlarged. However, severe autolysis of tissues precluded histologic interpretation.

Animal 846:

The bone marrow was effaced and replaced by sheets of round cells, which extended beyond the cortical bone of the sternum to infiltrate the adjacent skeletal muscle and associated connective tissues of the sternebrae. Similar atypical round cells infiltrated and diffusely expanded alveolar septae, peribronchial and perivascular spaces of large airways and vessels of the lung, and effaced bronchial lymph nodes. Similar round cells infiltrated portions of the great vessels and atria of the heart, infiltrated the liver multifocally, and diffusely expanded and effaced large portions of the spleen. Round cell infiltrates were observed expanding the capsular surface of the kidney, peripancreatic tissues and effacing pancreatic lymph nodes, multifocally within the peri-prostatic tissues, and focally along the serosal surface of the stomach.

Morphologic diagnosis:

1. Multiple tissues: Disseminated lymphosarcoma.

Animal 1315:

Histologically, there was marked autolysis, which precluded histologic interpretation of all tissues.

Animal 1319:

Grossly, the spleen and liver were enlarged. In sections of lung, alveolar walls and perivascular and peribronchiolar spaces were diffusely thickened by a round cell infiltrate. Similar cells effaced the mediastinal lymph nodes and multifocally infiltrated the atria of the heart, multifocally infiltrated and replaced sections of liver and mesenteric lymph node, and infiltrated the capsular surface of an adrenal gland and sections of prostate gland.

Morphologic diagnosis:

1. Multiple tissues: Disseminated lymphosarcoma.

Animal 1463:

No significant findings. Severe autolysis precluded histologic interpretation of some tissues.

**RESULTS** (tabular):

**Table 1**. – Lesions observed in tissues from submitted mice.

|  |  |
| --- | --- |
| Animal No. | Histologic diagnosis |
| 169 | Multicentric lymphoma, hemangiosarcoma (suspect) |
| 336 | No significant findings, autolysis precludes diagnosis. |
| 337 | No significant findings, autolysis precludes diagnosis. |
| 846 | Disseminated lymphosarcoma. |
| 1315 | No significant findings, autolysis precludes diagnosis. |
| 1319 | Disseminated lymphosarcoma. |
| 1463 | No significant findings, autolysis precludes diagnosis. |

**DISCUSSION:**

The purpose of this evaluation was to determine cause of death in submitted animals. Examined carcasses were in various states of degradation due to autolysis, which significantly impacted interpretation of the presence of any tissue changes. Therefore, the lack of a specific diagnosis does not necessarily confirm the lack of lesions in examined animals; rather, autolysis may have resulted in loss of identifiable processes or tissues in which an etiology was present in-life. In animals with histologic evidence of lesions, the predominant process was neoplasia, and the specific etiology was lymphoma/lymphosarcoma affecting multiple organs. One animal had a focal proliferation of irregular ectatic blood-filled spaces replacing hepatocytes in the liver, lined by plump endothelial cells. It is uncertain if this truly represents a neoplastic process (hemangiosarcoma) in this animal, as the changes were suspicious, not definitive, for this etiology, and considering the degree of autolysis present in this animal.

In chronic studies using C57BL/6 mice, lymphomas are the most common background spontaneous neoplastic lesions observed in this strain, with incidences up to 31% in female mice, and slightly lower incidence in males. As a background neoplasm, lymphoma is unusual before 12 months, and typically involves the spleen, mesenteric lymph nodes, liver, and may involve the Peyer’s patches or GALT in the small intestine. Often, as in this study, lymphoma is observed affecting numerous tissues, in a vascular pattern, illustrating its disseminated nature. Since it is a common background tumor in aged mice, it is uncertain as to whether this neoplasm represents an effect on disease phenotype due to the transgenic manipulation, or rather if it merely represents an age-related terminal disease arising spontaneously in these animals. Additional animals and wildtype controls would need to be assessed to determine whether this phenotype is related to the reported genotype.

Pathologist: Mark J. Hoenerhoff, DVM, PhD, DACVP



October 21st, 2016

*This report is intended for rapid communication of histopathology results to the submitting researcher. If portions of this report are subsequently utilized in a publication or presentation please communicate this to the pathologist so that the draft may be reviewed to ensure a narrative appropriate to the particular forum.*

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