



CMHD Pathology Report



CMHD Pathology Core

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ReportID: Report Date: July 16, 2013
Pathologist: Dr. H. Adissu

Mouse Genetics Project

Wellcome Trust Sanger
Institute
Wellcome Trust Genome
Campus
Hinxton, Cambridge
CB10 1SA
UK

CMHD LabID: N13-483

Relevant History:

increased mean platelet volume
decreased mean corpuscular volume
decreased mean corpuscular hemoglobin
hypoferremia
decreased vertical activity
decreased corpus callosum size
enlarged lateral ventricles

AnimalID: M00546693 (Male)

Histopathology Findings:

liver (MA:0000358)

Histopath Description:

diffuse lipidosis

Morphological Diagnosis:

Distribution: diffuse; **Severity:** severe; **MPATH Diagnosis:** steatosis MPATH:622

Definitive Diagnosis:

Hepatic lipidosis

brain (MA:0000168)

Histopath Description:

There is moderate dilation of the lateral ventricles (more severe than usually seen in WT controls). The periventricular neuropile and the corpus calosum overlying the ventricles are rarefied.

Morphological Diagnosis:

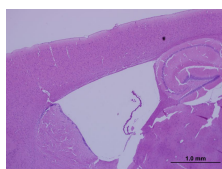
Distribution: bilateral; **Severity:** moderate;

Definitive Diagnosis:

Dilation of the brain ventricles; segmental vacuolar degeneration of the periventricular neuropil and attenuation of the corpus calosum

Histopathology Comments:

Mild dilation of the lateral ventricles is a background condition in mice of C57BL/6N background (Brayton et al., 2004). The dilation is more marked than usually seen in WT controls of this strain.



Brain, dilated lateral
ventricle, 4x, HE

lymph node (MA:0000139)

Histopath Description:

The mesenteric lymph node is markedly enlarged (greater than five-fold). The medulla is expanded by chords and sheets of plasmotoid cells.

Morphological Diagnosis:**Distribution:** Diffuse; **Severity:** extreme; **MPATH Diagnosis:** hyperplasia MPATH:134**Definitive Diagnosis:**

Lymphoid hyperplasia with medullary plasmacytosis.

Histopathology Comments:

The changes in the mesenteric lymph node are suggestive of draining of a regional inflammatory process. However, such a process was not observed in the tissues examined.

stomach (MA:0000353)**Histopath Description:**

mild neutrophilic gastritis

Morphological Diagnosis:**Distribution:** multifocal to coalescing; **Severity:** mild;**Definitive Diagnosis:**

Gastritis, neutrophilic

bone marrow (MA:0000134)**Histopath Description:**

Coarse iron stores are scarce

Morphological Diagnosis:**Severity:** moderate;**Definitive Diagnosis:**

Minimal marrow iron store

Organ/Tissue Analyzed:

Histopathology examination included the following organs and tissues: brain, trigeminal ganglion, eyes, salivary glands, trachea, lungs, heart, thymus, thyroid gland, parathyroid gland, exocrine and endocrine pancreas, oesophagus, stomach, small intestine, large intestine, liver, gall bladder, spleen, kidneys, adrenal gland, lymph nodes, spinal cord, bone marrow, sternum, femur and tibia with associated skeletal muscles, brown fat, pinna, skin, testis, epididymis, seminal vesicle, and prostate.

AnimalID: M00546694 (Male)**Histopathology Findings:****liver (MA:0000358)****Histopath Description:**

diffuse lipidosis

Morphological Diagnosis:**Distribution:** diffuse; **Severity:** severe; **MPATH Diagnosis:** steatosis MPATH:622**Definitive Diagnosis:**

Hepatic lipidosis

thymus (MA:0000142)**Histopath Description:**

There are two 50 um diameter epithelial cysts.

Morphological Diagnosis:**Distribution:** multifocal; **MPATH Diagnosis:** cyst MPATH:62**Definitive Diagnosis:**

Epithelial cyst

Histopathology Comments:

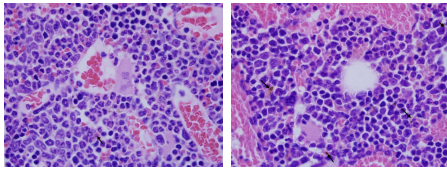
This is a developmental abnormality commonly seen in mice.

bone marrow (MA:0000134)**Histopath Description:**

Coarse iron stores are scarce

Morphological Diagnosis:**Severity:** moderate;**Definitive Diagnosis:**

Erythroid hypoplasia (mild), minimal marrow iron store



Bone marrow, few iron stores (arrow), 100x, HE

Bone marrow, normal, note iron stores (arrow), 100x, HE

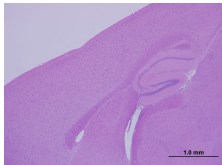
brain ventricle (MA:0000818)

Morphological Diagnosis:

Severity: no lesions;

Definitive Diagnosis:

Normal



Brain, normal, 4x, HE

Organ/Tissue Analyzed:

Histopathology examination included the following organs and tissues: brain, trigeminal ganglion, eyes, salivary glands, trachea, lungs, heart, thymus, thyroid gland, parathyroid gland, exocrine and endocrine pancreas, oesophagus, stomach, small intestine, large intestine, liver, gall bladder, spleen, kidneys, adrenal gland, lymph nodes, spinal cord, bone marrow, sternum, femur and tibia with associated skeletal muscles, brown fat, pinna, skin, testis, epididymis, seminal vesicle, and prostate.

AnimalID: M00578504 (Female)

Histopathology Findings:

liver (MA:0000358)

Histopath Description:

diffuse lipidosis

Morphological Diagnosis:

Distribution: diffuse; **Severity:** severe; **MPATH Diagnosis:** steatosis MPATH:622

Definitive Diagnosis:

Hepatic lipidosis

lymph node (MA:0000139)

Histopath Description:

The mesenteric lymph node is markedly enlarged (greater than five-fold). There are multiple germinal centers and the medullary sinuses are expanded by chords and sheets of mature lymphocytes

Morphological Diagnosis:

Distribution: Diffuse; **Severity:** extreme; **MPATH Diagnosis:** hyperplasia MPATH:134

Definitive Diagnosis:

Lymphoid hyperplasia

brain (MA:0000168)

Histopath Description:

There is moderate dilation of the lateral ventricles (more severe than usually seen in WT controls). The periventricular neuropile and the corpus calosum overlying the ventricles are rarefied.

Morphological Diagnosis:

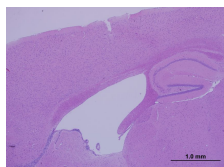
Distribution: bilateral; **Severity:** moderate;

Definitive Diagnosis:

Dilation of the brain ventricles; segmental vacuolar degeneration of the periventricular neuropil and attenuation of the corpus calosum

Histopathology Comments:

Mild dilation of the lateral ventricles is a background condition in mice of C57BL/6N background (Brayton et al., 2004). The dilation is more marked than usually seen in WT controls of this strain.



Brain, dilated lateral ventricle, 4x, HE

bone marrow (MA:0000134)

Histopath Description:

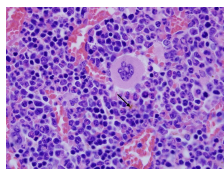
Coarse iron stores are scarce

Morphological Diagnosis:

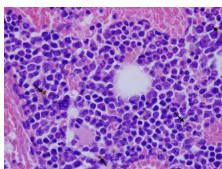
Severity: moderate;

Definitive Diagnosis:

Minimal marrow iron store



Bone marrow, few iron stores (arrow), 100x, HE



Bone marrow, normal, note iron stores (arrow), 100x, HE

Organ/Tissue Analyzed:

Histopathology examination included the following organs and tissues: brain, trigeminal ganglion, eyes, salivary glands, trachea, lungs, heart, thymus, thyroid gland, parathyroid gland, exocrine and endocrine pancreas, oesophagus, stomach, small intestine, large intestine, liver, gall bladder, spleen, kidneys, adrenal gland, lymph nodes, spinal cord, bone marrow, sternum, femur and tibia with associated skeletal muscles, brown fat, pinna, skin, uterus, oviduct, and ovary, and mammary gland.

AnimalID: M00578503 (Female)

Histopathology Findings:

liver (MA:0000358)

Histopath Description:

diffuse lipidosis

Morphological Diagnosis:

Distribution: diffuse; **Severity:** severe; **MPATH Diagnosis:** steatosis MPATH:622

Definitive Diagnosis:

Hepatic lipidosis

brain (MA:0000168)

Histopath Description:

There is moderate dilation of the lateral ventricles (more severe than usually seen in WT controls). The periventricular neuropile and the corpus callosum overlying the ventricles are rarefied.

Morphological Diagnosis:

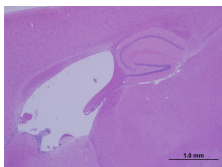
Distribution: bilateral; **Severity:** moderate;

Definitive Diagnosis:

Dilation of the brain ventricles; segmental vacuolar degeneration of the periventricular neuropil and attenuation of the corpus callosum

Histopathology Comments:

Mild dilation of the lateral ventricles is a background condition in mice of C57BL/6N background (Brayton et al., 2004). The dilation is more marked than usually seen in WT controls of this strain.



Brain, dilated lateral ventricle, 4x, HE

lymph node (MA:0000139)

Histopath Description:

The mesenteric lymph node is markedly enlarged (greater than five-fold). The medulla is expanded by chords and sheets of plasmotoid cells.

Morphological Diagnosis:

Distribution: Diffuse; **Severity:** extreme; **MPATH Diagnosis:** hyperplasia MPATH:134

Definitive Diagnosis:

Lymphoid hyperplasia with medullary plasmacytosis.

Histopathology Comments:

The changes in the mesenteric lymph node are suggestive of draining of a regional inflammatory process. However, such a process was not observed in the tissues examined.

bone marrow (MA:0000134)

Histopath Description:

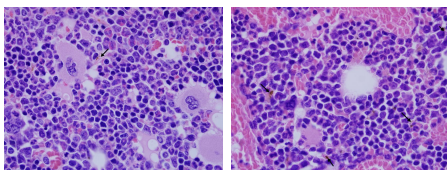
Coarse iron stores are scarce

Morphological Diagnosis:

Severity: moderate;

Definitive Diagnosis:

Minimal marrow iron store



Bone marrow, few iron stores (arrow), 100x, HE

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Organ/Tissue Analyzed:

Histopathology examination included the following organs and tissues: brain, trigeminal ganglion, eyes, salivary glands, trachea, lungs, heart, thymus, thyroid gland, parathyroid gland, exocrine and endocrine pancreas, oesophagus, stomach, small intestine, large intestine, liver, gall bladder, spleen, kidneys, adrenal gland, lymph nodes, spinal cord, bone marrow, sternum, femur and tibia with associated skeletal muscles, brown fat, pinna, skin, uterus, oviduct, and ovary, and mammary gland.

Report Summary and Recommendation:

Main findings in this line are moderate dilation of lateral ventricles of the brain (3/4) and decreased marrow iron stores (4/4). The dilated ventricles and the mild attenuation of the corpus calosum are consistent with clinical phenotypes in this line. The change in the corpus calosum is mild and was likely a consequence of the dilation of the ventricles. The decreased iron stores in the bone marrow is consistent with hypoferremia observed in this line. Hypoferremia may explain the decreased mean corpuscular volume and decreased mean corpuscular hemoglobin (features of microcytic anemia). These hematologic changes are not reflected in the bone marrow. Murine marrow demonstrate wide variation in myeloid and erythroid ratios; hence difficult to confirm peripheral blood phenotypes (notably those characterized by mild changes).

Summary: Marked ventricle dilation with segmental attenuation of periventricular neuropil and corpus calosum (3/4). Decreased bone marrow iron store (4/4).