CMHD Pathology Report

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ReportID: Report Date: July 12, 2013
Pathologist: Dr. H. Adissu

CMHD LabID: N13-474

Relevant History:
Phenotype:

abnormal fertility/fecundity

AnimalID: M00257713 (Male)

Histopathology Findings:

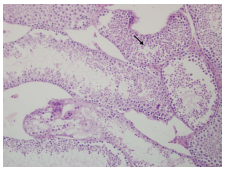
testis (MA:0000411)

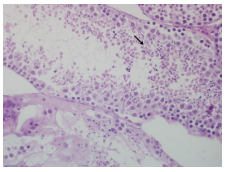
Histopath Description:
In both testis, seminiferous tubules contain very few maturing spermatocytes. Germ cells are detached from the basement membrane and from each other. The majority of spermatids are dissociated from each other and from sertoli cells and are freely present in the lumen.

Morphological Diagnosis:
Distribution: multifocal to coalescing; **Severity:** severe;

Definitive Diagnosis:
Spermatid dissociation and lack of spermatogenesis

Histopathology Comments:
This is a very unique lesion suggestive of defect in cell adhesion and subsequent lack of maturation of spermatids .


Testis, spermatid dissociation and lack of spermatogenesis, 20x, HE

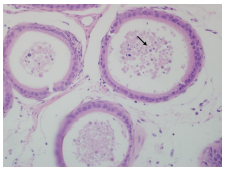

Testis, spermatid dissociation and lack of spermatogenesis, 40x, HE

epididymal duct (MA:0001735)

Histopath Description:
Large numbers of enucleated spermatids are also present within the seminiferous tubules and the epididymis. The epididymis is devoid of sperm cells.

Morphological Diagnosis:
Distribution: bilateral;

Definitive Diagnosis:
Epididymal aspermia; presence of spermatid ghost cells within epididymis


Epididymal duct, spermatid ghost cells in lumen; note ack of spermatocytes, 40x, HE

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 mild dilation of the lateral ventricles

Morphological Diagnosis:
Distribution: bilateral; **Severity:** mild;

Definitive Diagnosis:
Dilation of the brain ventricles

Histopathology Comments:
Mild dilation of the lateral ventricles is a background condition in mice of C57BL/6N background (Brayton et al., 2004).

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: M00257718 (Male)

Histopathology Findings:

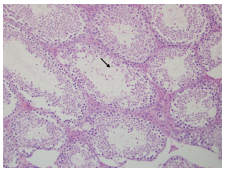
testis (MA:0000411)

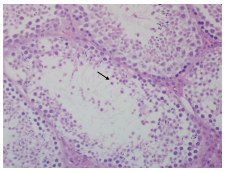
Histopath Description:
In both testis, seminiferous tubules contain very few maturing spermatocytes. Germ cells are detached from the basement membrane and from each other. The majority of spermatids are dissociated from each other and from sertoli cells and are freely present in the lumen.

Morphological Diagnosis:
Distribution: multifocal to coalescing; **Severity:** severe;

Definitive Diagnosis:
Spermatid dissociation and lack of spermatogenesis; Epididymal aspermia

Histopathology Comments:
This is a very unique lesion suggestive of defect in cell adhesion and subsequent lack of maturation of spermatids .


Testis, spermatid dissociation and lack of spermatogenesis, 20x, HE

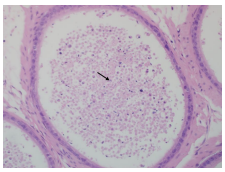

Testis, spermatid dissociation and lack of spermatogenesis, 40x, HE

epididymal duct (MA:0001735)

Histopath Description:
Large numbers of enucleated spermatids are also present within the seminiferous tubules and the epididymis. The epididymis is devoid of sperm cells.

Morphological Diagnosis:
Distribution: bilateral;

Definitive Diagnosis:
Epididymal aspermia; presence of spermatid ghost cells within epididymis



Epididymal duct, spermatid ghost cells in lumen; note ack of spermatocytes, 40x, HE

liver (MA:0000358)

Histopath Description:
diffuse lipidosis

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

Definitive Diagnosis:
Hepatic lipidosis

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: M00240690 (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 mild dilation of the lateral ventricles

Morphological Diagnosis:
Distribution: bilateral; **Severity:** mild;

Definitive Diagnosis:
Dilation of the brain ventricles

Histopathology Comments:
Mild dilation of the lateral ventricles is a background condition in mice of C57BL/6N background (Brayton et al., 2004).

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 plasmatoid 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.

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: M00240655 (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). The medulla is expanded by chords and sheets of plasmatoid cells.

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

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Report Summary and Recommendation:
The main finding in this line is germ cell dissociation and defective spermatogenesis with epididymal aspermia consistent with infertility documented in this line. The lesion is consistent wiith putative role of the gene (CAM1) in mediating adhesion between spermatogenic and Sertoli cells and its role in spermatogenesis. Infertility was reported in CAM1 null mice (Wakayama and Iseki, 2009).

Line summary: Germ cell dissociation, absence of spermatogenesis, epididymal aspermia

References:
Wakayama T, Iseki S. Anat Sci Int. Role of the spermatogenic-Sertoli cell interaction through cell adhesion molecule-1 (CADM1) in spermatogenesis. 2009; 84:112-21.