

### MEXICAN WOLF NECROPSY PROTOCOL

INSTITUTION/OWNER Wolf Conservation Center  
 ADDRESS 7 Dick Run South Salem NJ 10590  
PO Box 421

CANID SPECIES Mexican Wolf ANIMAL ISIS ID # \_\_\_\_\_  
 STUD BOOK # M1140 SEX M  
 BIRTH DATE/AGE 4/22/08 WEIGHT #60

REPRODUCTIVE HISTORY:

SHOWN BEHAVIORAL ESTRUS? No  
 EVER BRED? No  
 PRODUCED PUPS? No  
 EVER HOUSED WITH OPPOSITE SEX? yes - siblings + parent

DATE OF DEATH 8/16/16 DATE OF NECROPSY 8/16/16

HISTORY: (Briefly summarize clinical signs, circumstances of death.)

Developed breathing issues + 2 weeks ago.  
 Radiographs suspicious of nasal neoplasm.  
 Over 2 weeks, condition declined. When stop  
 eating opted for euthanasia. Necropsy confirmed  
 nasal tumor.

Please have your pathologist perform a histopathology on the tissues. Then send the gross examination worksheets and pathologists report to Dr. Linda Munson, Mexican Wolf SSP® Pathology Advisor; University of California; Department VM-PMI; 1126 Haring Hall, 1 Shields Ave.; Davis, CA 95616; PH: 916-754-7567; Fax: 916-752-3329. Copies of the completed necropsy reports should be faxed to the SSP® Veterinary Advisor Dr. Randi Meyerson at The Toledo Zoo; P.O. Box 140130; Toledo, Ohio, U.S.A., 43609; PH: 419-385-5721, ext. 2052; FX: 419-385-6935; Email: [randi@toledozoo.org](mailto:randi@toledozoo.org).

Pound Ridge Veterinary Center  
ANTECH Acct No. 4315

Accession No. NYBB07535471  
Received 08/19/2016  
Reported 08/28/2016 10:36 AM

Doctor NOT STATED

Owner WOLF CENTER	Pet Name M1140	Species Canine	Breed	Sex M	Pet Age 8Y	Chart# N
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Test Requested	Results	Reference Range	Units
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**HISTOPATHOLOGY, FULL WRITTEN REPORT**

History:

Necropsy. Nasal tumor COD.

- 1) Lung. 2) Heart. 3) Bone marrow. 4) Lymph node. 5) Trachea. 6) Thyroid. 7) Stomach. 8) Kidney. 9) Liver. 10) Pancreas. 11) Muscle. 12) Skin. 13) Spleen. 14) Small intestine. 15) Adrenal. 16) Large intestine. 17) Bladder. 18) Nasal tumor I. 19) Nasal tumor II.

Received:

- A) Lung. Necropsy tissue.
- B) Heart. Necropsy tissue.
- C) Bone marrow. Tissue pending additional processing.
- D) Lymph node. Necropsy tissue.
- E) Trachea. Necropsy tissue.
- F) Thyroid. Necropsy tissue.
- G) Stomach. Necropsy tissue.
- H) Kidney. Necropsy tissue.
- I) Liver. Necropsy tissue.
- J) Pancreas. Necropsy tissue.
- K) Muscle. Necropsy tissue. Necropsy tissue.
- L) Skin. Necropsy tissue. Necropsy tissue.
- M) Spleen. Necropsy tissue.
- N) Small intestine. Necropsy tissue.
- O) Adrenal. Necropsy tissue.
- P) Large intestine. Necropsy tissue.
- Q) Bladder. Necropsy tissue.
- R) Nasal tumor I. Necropsy tissue.
- S) Nasal tumor II. Necropsy tissue.

Biopsy

SOURCE:

Multiple Necropsy Tissues

DESCRIPTION/MICROSCOPIC FINDINGS/COMMENTS:

MICROSCOPIC DESCRIPTION

Nasal mucosa: Sections contain a submucosal neoplasm composed of epithelial cells organized into lobules with central keratinization and stromal cartilagenous and osseous metaplasia. These cells have ample, vacuolated cytoplasm and variably distinct borders. Nuclei are round to oval with coarse chromatin and 1-2 large nucleoli. There is marked anisocytosis and anisokaryosis. Mitoses are 21 in 10 high power fields. Approximately 15% of the neoplasm is necrotic.

Kidney: Occasionally glomeruli are surrounded by a mildly thickened and hyalinized Glisson's capsule. There is mild mesangial expansion within the capillary tuft. There are rare obsolescent glomeruli.

Liver: Centrilobular hepatocytes are expanded by flocculent eosinophilic vacuoles that do not displace the nucleus. Some more severely affected hepatocytes have clear cytoplasm that is enlarged up

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to 5 times. Affected hepatocytes also contain cytoplasmic hyaline droplets and lipofuscin.

Spleen: The splenic capsule is multifocally elevated by siderotic plaques.

Adrenal gland: The medulla is not in section. Cells in the zona reticularis are expanded by eosinophilic protein droplets and are variably mineralized.

The following organ sections are within normal limits: Lung, Heart, Bone Marrow, Lymph node, Trachea, Thyroid gland, Parathyroid gland, Stomach, Pancreas, Skeletal muscle, Skin, Small intestine, Colon, Urinary bladder.

**MICROSCOPIC FINDINGS:**

NASAL ADENOSQUAMOUS CARCINOMA WITH OSSEOUS AND CHONDROID METAPLASIA - NASAL TUMOR

MILD, CHRONIC, MULTIFOCAL, MEMBRANOUS GLOMERULOPATHY - KIDNEY

MODERATE, SUBACUTE, CENTRILOBULAR VACUOLAR HEPATOPATHY - LIVER

MILD, CHRONIC, MULTIFOCAL SIDEROTIC PLAQUES - SPLEEN

MILD, CORTICAL DEGENERATION / SENESCENCE (ZONA RETICULARIS) - ADRENAL GLAND

COMMENTS: The nasal tumor is a keratinizing carcinoma. If arising in the nasal cavity, then this is most likely a variant of adenocarcinoma with squamous metaplasia. But these are impossible to differentiate histologically from squamous cell carcinoma, which usually arise on the nostrils / philtrum secondary to solar damage. There was no evidence of metastatic disease in the submitted sections of lung and lymph node. Vacuolar hepatopathy might be secondary to steroids, if given as palliative therapy in the weeks before death. Otherwise, vacuolar hepatopathy can be seen in a number of disease conditions including neoplasia and endocrine disease. Degenerative changes in the adrenal gland are common in captive wild species. Membranous glomerulopathy was fairly mild and was of questionable clinical significance. Again, this is a degenerative condition common in canid species.

**PATHOLOGIST:**

Laura L. Coffee, MPH, DVM, DACVP  
Veterinarians: please feel free to contact me 9AM-5PM Sunday, Monday, Wednesday and Thursday.  
laura.coffee@antechmail.com  
516.326.3942

Note: With our Antech OnLine viewer, you can access the pathologist's Snippet image of the histopathologic lesions of this accession. Open the accession on Antech OnLine, and click the large DigiPath icon. You will see Antech Diagnostic's exclusive interactive Snippet, complete with a magnifier.

Animal ISIS ID# M1140

**GROSS EXAMINATION  
WORKSHEET**

PROSECTOR: Dr. Charles Duffy

GENERAL CONDITION: (Nutritional condition, physical condition)

NEONATES: Examine for malformations (cleft palate, deformed limbs, etc.)

SKIN: (Including pinna, feet)

*Normal*

MUSCULOSKELETAL SYSTEM: (Bones, joints, muscles)

*Thin muscle wasting*

BODY CAVITIES: (Fat stores, abnormal fluids)

NEONATES: Assess hydration (tissue moistness)

*Abnormal fat stores increased over normal*

HEMOLYMPHATIC: (Spleen, lymph nodes, thymus)

*Spleen hemosiderin plaque throughout  
no masses*

RESPIRATORY SYSTEM: (Nasal cavity, larynx, trachea, lungs, regional lymph nodes)

NEONATES: Determine if breathing occurred (Do the lungs float in formalin?)

*Massive cloudy mass involving the right nasal cavity  
from nares to cubiform plate lungs clear*

CARDIOVASCULAR SYSTEM: (Heart, pericardium, great vessels)

*Normal heart & vessels*

DIGESTIVE SYSTEM: (Mouth, teeth, esophagus, stomach, intestines, liver, pancreas, mesenteric lymph nodes)

NEONATES: Is milk present in stomach?

*Intestines all normal, mouth & teeth normal  
liver normal pancreas some small calcifications*

URINARY SYSTEM: (Kidneys, ureters, urinary bladder, urethra)

*Normal*

REPRODUCTIVE SYSTEM: (Testis/ovary, uterus, vagina, penis, prepuce, prostate, mammary glands, placenta)

*Normal*

ENDOCRINE SYSTEM: (Adrenals, thyroid, parathyroids, pituitary)

*Normal*

NERVOUS SYSTEM: (Brain, spinal cord, peripheral nerves)

*Normal*

SENSORY ORGANS: (Eyes, ears)

*Normal*

PRELIMINARY DIAGNOSES:

*Nasal carcinoma*