

Report Date  
AUG-21-12 09:10 AM

UMC VET MED DIAGNOSTIC LAB, PO BOX 6023  
COLUMBIA, MO 65205 PHONE: 573-882-6811

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Phone #: 573-882-6811

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Owner: TERRI VEST  
1250 N LINCOLN  
O FALLON, IL 62269

Accession Number: 0523246

Case Coordinator: Gayle Johnson DVM, Ph.D

Received: 11/15/2005      Finalized: 11/23/2005

Sampled:

To: DR. DANIELLE EIFLER  
MU VMTH  
900 E CAMPUS DRIVE  
COLUMBIA, MO 65211

Final Report

**PATHOLOGY RESULTS**

**GROSS NECROPSY**

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**PATHOLOGY RESULTS**

**ANIMAL ID** Pat  
**SPECIES** Canine  
**BREED** German Shepherd Dog  
**FINAL DIAGNOSIS**

Suspected spondylosis and spinal root compression, with neurogenic atrophy  
Interstitial cell tumor  
Splenic thrombosis, bland  
Hepatopahty with lipidosis and regenerative nodules  
Degenerative joint disease

**COMMENTS**

18 Nov 05: Myelin and axon stains have been requested, but the histologic lesions are not very consistent with degenerative myelopathy. There is considerable degeneration of nerve roots and surprisingly extensive neurogenic muscle atrophy. In addition, the dog has degeneration of the cuneate nuclei which would interfere with proprioceptive acumen. The animal had spectacular spondylosis at multiple levels of the spine, often without much narrowing of the disc space. The spinal root and nerve lesions could have resulted from compression at the foramina, and this would explain the variable age seen between lesions. Demineralized sections are pending. Degenerative changes in the liver are more consistent with fat than glycogen. Updated comments will follow.

23 Nov 05: Special stains demonstrate a loss of myelin that is restricted to nerves and nerve roots, without significant loss in the white matter of the spinal cord. This finding is not consistent with old dog myelopathy. Bielskowsky stains reveal loss and reduce diameter of axons, also with minimal change in the CNS. Trichrome stains reveal that there is widespread and severe fibrosis of the alveolar walls in the section of lung. Moderate interstitial fibrosis is present in the myocardium of the heart.

Sections of demineralized vertebral junctions reveal the presence of annulus fibrosis that is irregularly hyperplastic. Active inflammation is not evident in the areas examined. Sections of demineralized gum reveal an undulating, thickened, but not invasive gingival mucosa, and a thick mature layer of fibrous tissue that blends in with the bone of the region. The fibrous tissue is mature and not inflamed. This is consistent with gingival hyperplasia.

**GROSS FINDINGS**

15 Nov 05: Received for necropsy is a white German shepherd-type older adult male canine. The dog has body weight 43.9 kg. The animal has a 2 cm diameter fatty mass in the subcutis over the right 7th rib and there is a roughened callus on the skin of the outer surface of the right elbow. The skin over the lateral left elbow is alopecic. There are excellent stores of abdominal and subcutaneous fat. Widespread muscular pallor and streaking are accompanied by reduced volume. These changes are most

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easily seen in the muscles of the dorsal thoracic girdle. There is very severe hyperplasia of the gingival, which partially buries worn incisor teeth and increases gingival volume noticeably along the molars. Moderate tartar is present. The right testicle contains a 3 cm diameter, well defined, fleshy yellow mass buried in its parenchyma. The lungs are mildly congested, and froth is present in the tracheal and bronchial lumens. They remain pliable and float in formalin. There are a few punctate widely scattered mineralized foci on the pleural surface, distributed randomly. The heart appears normal. The heart weight is 266.1 grams (0.61% body weight, normal). The left ventricle and septum weigh 151.8 grams and the right ventricular wall weighs 49.5 grams (ratio, 3.06, normal) The valve measurements are as follows: tricuspid 11 cm diameter, pulmonic 7.6 cm, mitral 10.6 cm, aortic 6 cm. The spleen contains a few slightly plump areas of parenchymal congested, all under 2 cm diameter and blending with normal tissue. The liver has rounded capsular margins and is congested. It has a somewhat lumpy appearance without any well defined masses being noted. The gall bladder is distended slightly with ropery bile, which can be expressed from the duct manually. The stomach contains green ingesta and has a normal mucosa. Congested areas are present in the small intestine, and soft formed feces are present in a very dilated terminal colon. The prostate is slightly eccentrically enlarged and fleshy. The urinary bladder is filled with normal content. The kidneys are mildly congested. The adrenals have a thickened cortex with at least one 0.5 cm nodule of pale tan to yellow cortical tissue in each one. The coxofemoral joints are unremarkable. There is roughening of the posterior humeral heads which is more extensive and severe on the right. The outer margin of the distal humerus is roughened on the left elbow. There are numerous areas of ankylosis and bony bridging along the ventral vertebral bodies. Bridging is noted at C3-4, C7-8 (severe), T6-7, T-L, L1-2 and L5-6. Some of the intervertebral discs appear dry and chalky, but antemortem extrusion is not evident although blunt protrusions occur at several sites. No gross findings are apparent in the tongue, brain, thyroids, esophagus, tracheal wall, kidneys, gastrointestinal wall, lymph nodes, or bone marrow.

**MORPHOLOGIC  
DIAGNOSIS**

Diffuse gingival hyperplasia  
Suspected interstitial cell tumor, testicle  
Severe muscle atrophy  
Mild osteoarthritis  
Ankylosing spondylosis

**GROSS COMMENTS**

16 Nov 05: Fixed tissues are being prepared for microscopic examination, and some refrigerated specimens will be saved for 10 days. Additional reports will follow as test results become available.

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**PATHOLOGY RESULTS**

**HISTOPATHOLOGY**

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**ANIMAL ID** Pat  
**SPECIES** Canine  
**BREED** German Shepherd Dog

**MICROSCOPIC  
FINDINGS**

18 Nov 05:

1. LUNG: The tissue is mildly congested. Alveolar walls appear prominent and there appears to be increased fibrous tissue in them. This is especially evident near the pleural surface of the section, where a mild suppurative infiltrate is also present (to be confirmed by special stains). Mild increases in alveolar macrophages are apparent as well. A few of the medium-sized airways have silicon rich macrophages around them.

HEART: Adipose tissue separated myocardial fibers and extends to the center of the specimen. There is mildly altered arrangement of the central myocardial fiber bundles and some appear a bit enlarged. Sclerotic change affects the muscular vessels of the muscle.

PROSTATE: Increased fibrosis separates atrophic glands.

2. SCIATIC NERVE: Occasional nerve fibers are vacuolated and there are mild irregular increases in Schwann cells.

ADRENALS: The cortex of both adrenals is irregularly thick, particularly the zona reticulate, with focal greater expansions of the parenchyma

TESTICLE: Sections of the mass are rounded and encapsulated. They contain hemorrhage and consist of sheets and nests of medium-sized eosinophilic cells arranged in and endocrinoid pattern. The cells have proportional condensed nuclei, which have marginated and finely granular chromatin. Small nucleoli are present, and mitoses not seen. The cells have eosinophilic cytoplasm that frequently contains lipid droplets. The adjacent compresses testicle has seminiferous tubules that contain only a single layer of Sertoli cells, and are devoid of sperm precursors.

3. LIVER: Bridging areas of hepatocytes are swollen and have numerous pale round cytoplasmic vacuoles. Bile pigment is being retained in some of these cells. The change seems to be predominantly near portal areas. Interspersed are irregular nodules of more eosinophilic hyperplastic tissue.

SPLEEN: Subcapsular areas at some places are expanded and separated by fibrin thrombi. There is mild hemosiderosis affecting the rest of the tissue.

KIDNEY: The mesangial matrix is increased in some glomeruli.

4,5. SMALL AND LARGE INTESTINE: One section of small intestine is characterized by scattered uncommon neutrophils in the villous lamina propria. Other sections are unremarkable.

6. SKELETAL MUSCLE: Adipose tissue separates individual clusters of myofibers. The fibers vary drastically in size and clusters of small angular fibers are present. In one longitudinal section there is additional infiltration of macrophages between fibers, but this is for the most part absent. Increased satellite nuclei are present in some cross sections.

LUMBAR SPINAL CORD: Lumbar nerve roots vary in their appearance and contain a few to many widely dilated axon sheaths. Modest numbers of dilated axons or intra-sheath macrophages are present. Some nerve roots have reduced overall fiber diameter and increased interstitial stroma. These may be arranged near more normal or acutely

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degenerating roots, and there is usually some degree of ongoing fiber loss.

7. THORACIC SPINAL CORD: The changes in the nerve roots are nearly all of long standing with reduced axon diameter and fibrosis. As in the lumbar sections, the spinal cord appears normal.

8. CERVICAL CORD: Changes are similar to the other sections.

MEDULLA: The accessory cuneate nuclei are characterized by several prominent, multilocular vacuoles in the neuropil at the edge. There are also axon swellings or torpedos near nuclear neurons.

9,10. CEREBELLUM, BRAINSTEM, CEREBRUM,  
HYPOTHALAMUS: Unremarkable.

**HISTOPATHOLOGY  
DIAGNOSIS**

Pulmonary fibrosis, suspected, with focal subpleural pneumonia

Neuropathy with severe axonal loss

Neurogenic atrophy, muscle

Axonopathy, cuneate nuclei

Hepatic lipidosis with nodular hyperplasia

Nodular hyperplasia, adrenal cortex

Splenic thrombosis

Very mild suppurative enteritis

Interstitial cell tumor, testis, with prostatic and testicular atrophy

**THIS TIME DATED REPORT SUPERSEDES ALL PREVIOUS REPORTS ON THIS VMDL ACCESSION.**