

**UNIVERSITY
of GUELPH**
LABORATORY SERVICES
Animal Health Laboratory

FINAL Report
Case# **G10-075112**
Reported: 2010-Sep-21

Submitted By:
HANOVER VET HOSP (SMALL)
DR DENNIS ADAMS
594 11TH ST
HANOVER, ON N0G 2V0

Owner:
HANNA BLACQUIER
NOG1K0

Phone: 519 364-6772
Fax: 519 364-7176
Sampling Date: 2010-Sep-09

Animal ID: **Seara**
Species/Breed: **German Shepherd**
Age: **10 Year(s)** Sex: **Female** Neutered

Received Date: 2010-Sep-10

Specimen(s) received: **1 canine**

HISTORY

"Anemia, distended abdomen, weak, diffuse neoplasia. Euthanized during exploratory surgery. Please see letter - White Shepherd Genetics Project. Search for various outlined diseases on checklist. Please have paw available for Gateway to make print if possible."

FINAL DIAGNOSIS(ES):

1. **Hemangiosarcoma**
See interpretation under histology section below.

Case Coordinator: Maria Spinato DVM DVSc Diplomate ACVP 519 824 4120 ext. 56895 mspinato@uoguelph.ca

Necropsy

Date Authorized: 2010-Sep-10 16:52

Gross findings: Necropsy performed by M.T. Spinato on September 10, 2010, 10:40-12:25. The dog was a spayed female weighing 36 kg. Externally, hydration was adequate and oral mucous membranes were pale. The hair coat was extensively stained with blood, and blood seeped from the abdominal incision. A scant amount of pasty feces was present in the perineal region; there were no perianal fistulas present. Internally, body condition was fair to good with adequate fat stores. The pleural cavity contained approximately 200-300 ml of blood. Pericardial sac was dry. Lungs were mild congested, slightly atelectatic and contained approximately 40-50 dispersed raised nodules that ranged from 3 mm to 3 cm in diameter, and were present in all lobes. One of the larger nodules located in the right caudal lobe had a small adherent tag of hemorrhagic fibrin. There were 2-3 mm diameter red foci visible on the epicardial aspect of the right atrium, and a larger, pale red, irregular fleshy mass measuring 1 cm in diameter was attached to the right atrial endocardium. Heart valves and chambers were otherwise unremarkable. Heart weights were measured, and ratios calculated: atria = 28.0 g, RV = 46.0 g, LV+S = 158.5 g; HW/BW% = 0.65%; LV+S/RV = 3.45. All heart weights and ratios are within normal reference intervals. Thyroid glands were unremarkable grossly. The abdomen contained approximately 1-1.5 L of blood. Liver was swollen, bronze with an accentuated zonal pattern, soft in texture and contained multiple gas bubbles. A 7-8 mm diameter red nodule was attached to the tip of one lobes. Several capsular depressions covered cavitated parenchymal foci that oozed blood. Numerous 3-7 mm diameter red nodules studded the omentum and mesentery, extending from the hepatic hilus to the pelvis, with fewer nodules visible in the peritoneum and bladder serosa. Right kidney and adrenal glands were unremarkable grossly. Several irregular depressed capsular foci were evident in the left kidney upon removal of the capsule. The spleen was markedly enlarged and contained multiple pale to dark red nodules protruding from the capsule that ranged from 3 mm to 4 cm in diameter. A large 8 cm diameter nodule situated within the mid body of the spleen had adherent clumps of hemorrhagic fibrin. Multiple adhesions between the spleen and mesentery were present. Brain and eyes were unremarkable grossly. Elbow joints had mild (right) to moderate (left) pitting erosion of the anconeal processes. Hip and stifle joints had no visible abnormalities. ON examination of the vertebral column, ankylosing spondylosis was most pronounced at the ventral aspects of L2-L3, and L3-L4 articulations, and was also present to a milder degree between L4-L5. The L7-sacral intervertebral disc was dry, crumbly and discoloured yellow, and the IV space was mildly expanded by fibrous tissue. The overlying dorsal longitudinal ligament bulged slightly into the vertebral canal. A 1 cm diameter ossified plaque was situated within the dura meninges of C1.

Diagnosis: Disseminated hemangiosarcoma with hemothorax and hemoabdomen

Interpretation: This dog's hemoabdomen was due to bleeding from disseminated foci of hemangiosarcoma involving spleen, liver and mesentery, in addition to lung and right atrium. A detailed examination of viscera, joints and bone was conducted, as per the submitted protocol. Tissues have been collected for histopathologic examination, and a final report will follow with the results of detailed microscopic examination. The remains are available for pick-up by a private cremation firm.

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Histopathology

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Spinal cord (4-10) There is focal mineralization of spinal nerve leptomeninges in the mid-thoracic spinal cord sections (7). Rare digestion chambers are present within ventral white matter tracts in the L4 cord segment (9). A few isolated swollen and vacuolated axons are also visible in the cauda equina obtained at the L-S junction (10).

Kidney (11) There is mild membranous thickening of the basement membranes in the parietal layer of a few Bowman's capsules. Coarse amber pigment is present within cortical tubular epithelial cells.

Thyroid (12) The gland is congested. Most follicles are small or contracted, and contain scant eosinophilic secretion.

Lung (12,14) Pulmonary parenchyma is autolysed and mildly congested. A moderate amount of anthracotic pigment is present within peribronchiolar stroma. Several variably-sized hemorrhagic nodules within the parenchyma contain fibrin, scattered neutrophils and solid nests of pleomorphic mesenchymal cells that disperse into a blood-filled sinusoidal network peripherally. Occasional mitotic figures and rare binucleated cells are present in this population of cells.

Spleen (13) A splenic nodule is comprised of a solid storiform arrangement of elongated to plump spindle cells that merge into a peripheral hemorrhagic zone traversed by interlacing cords lined by a similar population of markedly anisokaryotic mesenchymal cells. Nuclei are oval to polygonal, vesicular and contain occasional prominent nucleoli. Twenty-six mitotic figures are counted per 10-400X HPFs, and rare karyomegalic cells are visible. Scattered clusters of hemosiderin-laden macrophages and hematopoietic stem cells are present within the adjacent red pulp.

Heart (14,15,17) Many myocardial arterioles contain prominent intimal cushions. The right atrium (18) contains a 6 mm diameter, poorly-encapsulated mural nodule of pleomorphic spindle cells, similar to those described in the spleen and lung. Papillary fronds lined by plump mesenchymal cells project into the atrial lumen; rare karyomegalic cells and macronucleoli are evident in this cellular population.

Pancreas (16) Exocrine lobules are well-developed and autolysed. Pancreatic islets are difficult to identify.

Jejunum/Ileum (19,20) Villous epithelium is sloughed due to autolysis; crypts are lined by intact epithelium. A few eosinophils are sprinkled beneath the base of jejunal crypts, whereas ileal crypts are separated from the muscularis mucosae by 2-4 layers of eosinophils.

Colon (20) Glands are lined by intact epithelium, and are lifted from the muscularis mucosae by 2-4 layers of mononuclear cells admixed with fewer segmented leukocytes that are too autolysed for accurate identification.

Liver (20) Parenchyma is markedly autolysed. There is dissociation of hepatic cords. Portal tracts are slightly expanded by fibrous stroma with rare bridging evident. Marked canalicular cholestasis is present, in addition to accumulation of fine amber granules within hepatocyte cytoplasm, and bile-laden Kupffer cells. A 5 mm diameter hemorrhagic nodule within the parenchyma is too autolysed to determine cellular features.

There are no visible histologic lesions in these examined tissues: stomach, duodenum, adrenal, brain, pituitary, left and right eyes.

Diagnoses:

- 1) Disseminated hemangiosarcoma with hemoabdomen and hemothorax
- 2) Ankylosing spondylosis, L2-L5
- 3) L7-S1 intervertebral disc degeneration and prolapse
- 4) Minimal Wallerian degeneration of the spinal cord
- 5) Localized ossifying pachymeningitis, C1
- 6) Mild (right) to moderate (left) chronic degenerative elbow arthropathy

Interpretation: Bleeding disseminated hemangiosarcoma was confirmed as the cause of Seara's abdominal neoplasia, anemia and collapse. The Checklist of Common White Shepherd Diseases has been completed and faxed to Dr. Huston as requested, and a sample of the tumour was shipped to Dr. Froman at the Van Andel Institute for further scientific investigation.

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Private Cremation

Date Authorized: 2010-Sep-10 16:53

SampleID	Specimen	Test	Result	Note
Seara	Remains	Results	Ready for Release	

Comments:

The animal remains are now available to be picked up by a private cremation service. Biosafety regulations do not permit release of remains to unlicensed individuals.