

# UNIVERSITY OF MINNESOTA

## **Veterinary Diagnostic Laboratory** **College of Veterinary Medicine**

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**Accession Number:** D08-042589

**Owner:** GRUMDAHL, JUDY  
7231 HWY 53  
BRITT, MN 55710 Tel.: 218 780 5371

**Veterinarian:**

Clinician Name Not Received - CAPS  
Veterinary Medical Center  
Clinical Laboratories  
College of Veterinary Medicine  
St Paul, MN 55108

**Site:**

**Received:** 08/18/2008  
**Reference:** 311716  
**Species:** Canine  
**Breed:** German Shepherd Dog  
**Age:** 11 years  
**Sex:** F/S  
**Weight:** 33 kg

**History:** This dog had a history of a splenic mass. The spleen was removed 1.5 years ago and there was no evidence of hemangiosarcoma found on microscopic examination of the spleen. Within the last 2 weeks, a subcutaneous mass along the rib cage was removed and diagnosed as hemangiosarcoma. Two years ago, this owner had another White GSD "Lily" that was found to have ankylosing spondylosis and multifocal, myelin degeneration in the spinal cord (D06-019097). The dog died on 08/16/2008 at 9pm (euthanasia was not noted). The necropsy was performed on 08/18/08 by Heather Highbrown under the supervision of Dr. Detmer and Dr. Wuenschmann and recorded by Jenna Webeck.

*Note: This animal is a part of the White Shepherd Genetics Project.*

**Specimen:** A White German Shepherd Dog was submitted in a fair state of post mortem preservation. The microchip identification was 4763756B6A.

**Necropsy:**

Body Condition Score: 3.5/5 (1 = emaciated and 5 = obese).

General Findings (mucous membranes, body orifices): The left lower canine tooth had previously fractured and healed (no exposed pulp cavity). There was brown discoloration/staining to the enamel of most teeth. There was mild gingivitis and mild to moderate dental calculus on all teeth. The mucous membranes were pale pink. There was a small amount of dirt and debris in the external ear canal and pinnae of both ears.

Body cavities: There were approximately 50 mls of dark reddish brown opaque fluid in the abdominal cavity.

Integumentary system: The following areas were shaved: the skin over the left jugular (6x10 cm), the skin over both cephalic veins (2x5 cm), and the left lateral thorax over the last rib (24x18cm). There was a 6 cm healed incision over the last rib on the left lateral thorax. The subcutaneous tissue under this incision and extending approximately 20 cm cranially was diffusely red to purple (subcutaneous hemorrhage). There was a 1.5 mm, round, dark red, soft subcutaneous mass on the dorsal midline at the thoraco-lumbar junction. There was Vet-Wrap over the right antebrachium.

Muscular system: The musculature lateral and medial to the right stifle and extending distally to the phalanges was diffusely dark red to purple (hemorrhage). There was a 20 cm long, healed incision along the linea alba that had been closed with a simple continuous pattern of suture.

Skeletal system: There was very mild cartilage wear to both heads of the femurs. There were a few, 2-3 mm diameter white, hard, overgrowths of bone (osteophytes) on the distal humerus and proximal radii of both elbows.

Respiratory system: There were numerous 2-8 mm, soft, dark red to black, slightly raised nodules involving less than 10% of the pulmonary parenchyma.

**Cardiovascular system:** The heart weighed 258 grams (the expected heart weigh for a 33 kg dog is up to 280 grams). The right ventricular free wall, left ventricular free wall, and interventricular septum measured 6, 13, and 10 mm, respectively. There was a 2x1x0.5 cm dark red to purple mass on the right auricle with an attached hematoma. There was a 4x3.5x2.5 cm mass on the adventitia of the aorta ("heart base tumor") that was beige with multifocal dark red areas (hematomas). There were a few 1-2mm white, firm nodules on the mitral valve leaflets. There were 400 ml of dark red fluid in the pericardial sac.

**Alimentary system:** The liver contained numerous dark red nodules (1 to 6 mm) affecting approximately 15% of the hepatic parenchyma. The mesentery contained a few 1-5 mm dark red nodules. The small intestines and stomach contained a small amount of yellow mucoid material and a small amount of partially digested grass. There were formed feces in the distal colon. The size of the pancreas was considered to be normal.

**Urinary system:** There were no significant macroscopic lesions.

**Endocrine system:** There were no significant macroscopic lesions.

**Reproductive system:** The dog was a spayed female.

**Hemolymphatic system:** There were no significant macroscopic lesions.

**Nervous system:** The eyes, brain, and spinal cord were examined and there were no significant macroscopic lesions.

**Histopathology:** Slide 1: Cervical and cranial thoracic spinal cord, no significant microscopic lesions (nsml); post mortem autolysis.

Slide 2: Spinal ganglia (cervical intumescence), nsml.

Slide 3: Lumbar and mid to caudal thoracic spinal cord, nsml; post mortem autolysis.

Slide 4: Spinal ganglia (cauda equina), nsml.

Slide 5 to 10: Brain, nsml; post mortem autolysis.

Slide 11: Liver, hemangiosarcoma.

Slide 12: Lungs and right atrium, hemangiosarcoma.

Slide 13: "Heart base tumor", hemangiosarcoma.

Slide 14 and 15: Intestine, nsml; post mortem autolysis.

**Diagnosis:** Final

Heart (right atrium), hemangiosarcoma with rupture and hemopericardium.

Aorta, lung, liver, mesentery, and subcutis, hemangiosarcoma.

Mitral valve, endocardiosis, mild, chronic.

Elbows, degenerative joint disease, bilateral, mild, chronic.

**Comment:** The cause of death was the rupture of the right auricular hemangiosarcoma which led to cardiac tamponade. Hemangiosarcoma is the most common primary cardiac tumor of dogs; however chemodectoma, thymoma and ectopic thyroid tumor should be ruled out for the mass on the aorta. German shepherd dogs are overrepresented in studies of hemangiosarcoma.

The cause of the reported hind limb weakness/paresis was not apparent.

The degenerative joint disease of the elbow joints was mild and this degree may be expected as an age-related change.

Advanced post mortem tissue deterioration precluded meaningful histologic investigation of the intestine.

**To answer the questions from the White Shepherd Genetics Project:**

Hemangiosarcoma – confirmed in multiple locations.

Elbow dysplasia – not found, but mild degenerative joint disease was found.

Hips – No degenerative joint disease or hip dysplasia found.

Stifles – No degenerative joint disease or cruciate ligament injuries found.

Vertebral column – No intervertebral disc disease, lumbosacral stenosis, or spondylosis were found. (degenerative myelopathy – histopathology is pending)

Heart – No congenital malformations or dilated cardiomyopathy found.

Intestines – inflammatory bowel not detected; advanced post mortem tissue deterioration precluded meaningful histologic investigation of the intestine.

Pancreatic acinar atrophy – not found.

Perianal fistulas – None found.

Arno Wünschmann, DVM, Dr. med.vet., Diplomate, ACVP

Susan E. Detmer, DVM

**--Report--**

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Fax:	Mail:	Written: 08/21/2008	Addendum:
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