

Veterinary Diagnostic Laboratory  
College of Veterinary Medicine  
1333 Gortner Avenue  
St. Paul, MN 55108

## Diagnostic Detail Report

800-605-8787  
612-625-8787  
Fax: 612-624-8707  
e-mail: vdl@umn.edu

**Accession Number:** D21-015520

**Owner:** UMN RAR  
ST PAUL, MN

**Received Date:** 05/12/2021

**Site:**

**Reference:**

**Species:** Feline

**Premises ID:**

**Breed:** American Domestic Shorthair

**Date(s) Sampled:**

**Age:** **Sex:** Female

**Submitted by:** Research Animal Resources 1  
Diagnostic Expense Univ of MN  
MMC351  
Minneapolis, MN 55455  
US

**Weight:**

*Please be advised: Submitting to the U of M VDL through a licensed veterinarian increases quality and integrity of the submission and allows for the veterinarian to provide interpretations.*

**Status:** Final

Preliminary: [05/15/2021 15:47:00](#)

Final: [05/20/2021 12:00:00](#)

Final: [05/20/2021 12:00:00](#)

**Signalment / Subject of Exam:** Breed: Feline; Domestic Short Hair

Age: 1.5 years

Sex: Female Intact

Clinic #: RAR 2OAF7

Name: "Tammy"

**History:** This cat was a research cat used in neurology labs and arrested suddenly while under general anesthesia on May 12, 2021 for a planned craniotomy to place a chronic implant. Before the craniotomy could begin, the cat's end tidal CO2 dropped and the SpO2 dropped to 70-80%. The RAR veterinarian found that the cat was pale with no pulse or heartbeat. Cardiopulmonary resuscitation was initiated immediately, and intracardiac epinephrine was given, but was unsuccessful and 1.0mL of pentobarbital was given intracardiac at 11:30 am. The cat has previously been anesthetized with ketamine and dexmedetomidine and

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maintained on isoflurane on more than 15 occasions for various magnetic resonance imaging (MRI), with the first MRI having been performed at 10 weeks of age in February 2020. Historically the cat has had prolonged anesthetic recoveries with post-anesthetic hypothermia and inappetence for a few days following anesthesia. In February and March of 2021, the cat was noted to have lost 12% of body weight for unknown reason, but had recently gained the weight back. The submitter would like to know if the death was a direct result of anesthetic complications or a result of some other disease process. The cat was euthanized on May 12, 2021 at 11:30 am. The necropsy was performed on Thursday May 13, 2021 between 11:00am and 1:00pm by [REDACTED] (veterinary students) on the necropsy floor of the Minnesota Veterinary Diagnostic Laboratory under the supervision of Dr. Torii and Dr. Wuenschmann.

**Specimen:** The whole body of a black and white (tuxedo), adult, female intact, Domestic Short Hair cat was submitted in a state of good postmortem preservation. There was a black tattoo on the inner surface of the right pinna that read "M19" and another black tattoo on the inner surface of the left pinna that read "8158". Microchip identification was not detected using a universal microchip scanner.

**Gross Exam:** Body Condition Score : 3/5 (1 = emaciated and 5 = obese). The cat weighed 3.1 kg and had a small amount of subcutaneous and intra-abdominal adipose tissue.

General Findings : There were no significant macroscopic lesions.

Integumentary System : There were multiple shaved spots including a 3.0 x 8.0 cm area over the left medial saphenous vein region, a 4.0 x 8.0 cm area over the right medial saphenous vein region, a 2.0 x 3.0cm area over the dorsum of the tail, and a 5.0 x 6.5 cm area over the cranium with a red marking on the skin in the middle.

Musculoskeletal System : There were no significant macroscopic lesions.

Body Cavities : There were no significant macroscopic lesions.

Respiratory System : The lungs were diffusely dark red, moderately voluminous, heavy and wet. The cut surface was glistening. Within the distal tracheal lumen, there was a small amount of red, watery, translucent fluid.

Cardiovascular System : There were no significant macroscopic lesions. The heart weighed 11 grams (considered to be of normal size and weight; normal is <20g in the adult cat). The right ventricular free wall, left ventricular free wall, and interventricular septum measured 2.0, 5.0, and 6.0 mm, respectively. There was 2.3 mL of dark red, hemorrhagic fluid within the pericardial sac.

Alimentary System : The liver weighed 84 grams (2.7% of body weight; considered to be of normal size and weight). There were no significant macroscopic lesions.

Urinary System : There were no significant macroscopic lesions.

Endocrine System : There were no significant macroscopic lesions.

Reproductive System : There were no significant macroscopic lesions.

Hemolymphatic System : The iliac lymph nodes were mottled black and white.

Nervous System : There were no significant macroscopic lesions in the eyes or brain.

**Histopathology:** Slide A **Liver:** There is diffuse mild congestion. Affecting approximately 5% of the sections, there are a few, randomly scattered, small clusters of macrophages, occasionally with multinucleated giant cells (Langhan type) that contain globular brown intracytoplasmic pigments (interpreted as hemosiderin). **Spleen:** There is diffuse marked congestion. **Kidneys:** There is diffuse mild congestion.

Slide B **Lungs:** There is diffuse moderate to marked congestion. Affecting approximately 10-70% of the sections, there are extensive areas where the alveolar lumina are filled by large amounts of eosinophilic, homogenous material (interpreted as edema). In some areas, there is a mild increased numbers of alveolar macrophages. **Bone marrow:** The bone marrow is approximately 30% cellular. The estimate myeloid: erythroid ratio is 1:1. All three cellular lineages are present. **Lymph node:** There are no significant microscopic lesions.

Slide C **Heart, pancreas:** There are no significant microscopic lesions.

Slide D **Thyroid gland, adrenal glands:** There are no significant microscopic lesions.

Slides E-F: **Brain:** There are no significant microscopic lesions.

**Diagnosis:** Final

1. Lungs: a. congestion, diffuse, moderate, acute  
b. alveolar edema, diffuse, marked, acute
2. Pericardial sac – hydropericardium, moderate, acute
3. Thymus - persistence

**Comments:** The cause of the sudden, unexpected death in this cat could not be determined. There was no evidence of trauma, inflammatory disease, congenital defects, or neoplasia. The pulmonary changes were likely agonal (process of dying). We wonder whether the watery fluid in the pericardial sac (resembling a hydropericardium) was secondary to the intracardiac injections. The remainder of the postmortem findings were considered incidental.

Causes of sudden death that could not be excluded based on necropsy findings include (but are not limited to): certain metabolic derangements, electrophysiologic disturbances (e.g., cardiac arrhythmias or

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disturbances in the central nervous system), and hemodynamic disturbances, all of which can be fatal but do not produce diagnostic morphologic changes.

Dictated by: ARNO WUNSCHMANN, DVM, Dr. med.vet., Diplomate ACVP, PATHOLOGIST on 5/15/2021 2:06 PM

Attending Specialist: EMMA TORII, BVSc, MANZCVS (Pathobiology), PATHOLOGY RESIDENT

Electronically Signed By: ARNO WUNSCHMANN, DVM, Dr. med.vet., Diplomate ACVP, PATHOLOGIST on 5/20/2021 12:00 PM

Result	Entered	Completed
<b>Histopathology</b>		
<b>Histopathology - Fixed Tissue</b>		
1-20AF7 TAMMY	Please view diagnostic report.	05/13/2021 05/13/2021