

1 **Madison** - Canine Mixed Dog Spayed

Skin and subcutaneous tissues of muzzle and head (gross):

1. Moderate, multifocal, acute **puncture wounds with hemorrhage** (**bite wounds**, presumptive)
2. Moderate, focal, **acute hematoma** (**blunt force trauma**, presumptive)

Pulmonary artery (gross and histologic): Moderate dirofilariasis with severe, chronic, multifocal proliferative eosinophilic and lymphohistiocytic endoarteritis

Lungs (gross and histologic):

1. Severe, diffuse, acute **pulmonary edema and hemorrhage**
2. Mild, multifocal, subacute neutrophilic bronchopneumonia

VI. Cause of Death:

Euthanasia

Clear and convincing medical evidence indicates that the **cause of the coma is asphyxiation** secondary to mechanical upper airway obstruction. Based on the submitted history, the mechanical upper airway obstruction is attributed to **strangulation from restraining and dragging this dog by its leash**. This opinion is based on the clinical history and gross finding of a **ligature furrow** on the skin of the ventral neck together with severe and well-demarcated congestion of soft tissues of the head cranial to the larynx, multifocal **acute hemorrhage around the proximal trachea and esophagus**, and bilateral scleral injection with acute **retrobulbar hemorrhage**. Additionally, the gross and histologic features of **pulmonary congestion, edema and hemorrhage** are consistent with asphyxiation. While these findings are not specific to asphyxiation alone, the combined features of this case are supportive of this interpretation (McEwen, 2016). The **two puncture wounds on the muzzle and head** are consistent with the submitted history of a **fight with another dog and presumptive bite wounds**. A cause for the severe, diffuse, acute **meningeal hemorrhage with focal extradural hematoma** is uncertain, but might be **secondary to blunt force trauma to the head** at the time of the dog fight or while dragging this dog by its leash.

The presence of *Dirofilaria immitis* nematode parasites (heartworm) in the pulmonary arteries is considered an incidental finding in this case. The presence of scattered mononuclear inflammatory cells and aggregates of neutrophils within the lungs suggests a subclinical respiratory disease, and is also considered an incidental finding in this case.

McEwen, B. J. 2016. Nondrowning asphyxia in veterinary forensic pathology: Suffocation, strangulation, and mechanical asphyxia. *Veterinary Pathology* 53(5):1037–1048.

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III. Tissue block Listing

Slide 1: Lung

Slide 2: Lung, spleen

Slide 3: Lung

Slide 4: Lymph node, kidney

Slide 5: Liver

Slide 6: Trachea

Slides 7-9: Brain

Slide 10: Right eye

IV. Histologic Description (if applicable):

Histopathologic changes are detected in these tissues:

Lung (slides 1-3): In sections on slides 2 and 3, the alveolar spaces are diffusely filled with moderate numbers of foamy macrophages, small numbers of erythrocytes, and variable amounts of amorphous pale eosinophilic material (pulmonary edema and hemorrhage). Diffusely, alveolar capillaries are moderately congested. Scattered through the sections, affecting approximately 5% of alveolar parenchyma are small groups of adjacent alveoli that contain clusters of non-degenerate neutrophils. The lumen of pulmonary arteries are up to 90% occluded by broad, villous projections of dense fibrous connective tissue lined by endothelial cells and infiltrated by large numbers of eosinophils, lymphocytes, and macrophages.

Kidney (slide 4): Glomerular and interstitial capillaries are moderately congested.

Right eye (slide 10): Moderately expanding the peri-scleral adventitia are large numbers of extravascular erythrocytes (acute hemorrhage).

V. Morphologic diagnosis:

Brain (gross): Severe, diffuse, acute meningeal hemorrhage with focal extradural hematoma

Eyes (gross and histologic): Severe, bilateral, diffuse, acute peri-scleral and retrobulbar hemorrhage

Skin, ventral throat (gross): Severe, focal acute abrasion (ligature furrow)

Subcutaneous tissues, fascial planes and skeletal muscles of the head and neck, rostral to larynx (gross): Severe, diffuse, acute congestion with multifocal acute hemorrhage

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muscles) are diffusely purple to black (hemorrhage).

The following joints are opened: right and left coxofemoral joints, right and left stifle joints, right and left shoulder and right and left elbow joints.

4. Brain and meninges: The meninges overlying the cerebral hemispheres and cerebellum are diffusely dark red to purple and expanding the epidural space on the ventral aspect of the right temporal lobe, is a 3 x 4 cm well demarcated red to purple focus (epidural hematoma).

5. Nasal cavity/sinuses/pharynx: WNL

6. Middle and inner ears: WNL

7. Larynx, hyoid apparatus and trachea: WNL

8. Thoracic and abdominal wall: WNL

9. Vertebral column and spinal cord: WNL

10. Cardiovascular system: See below

11. Respiratory system: The lungs are diffusely red to purple, fail to collapse with rib impressions. Extending from the lumen of the pulmonary artery of the heart into the pulmonary artery of the right lung are two dozen thin 0.2 cm wide and 15.0 cm long white thread-like nematode parasites (*Dirofilaria immitis*).

12. Digestive system: WNL

13. Hepatobiliary system and pancreas: WNL

14. Reticuloendothelial system: WNL

15. Urogenital system: WNL

16. Endocrine system: WNL

17. Bones and muscles: (see skeletal muscles above #3)

18. Additional dissection (Placenta, etc.): Diffusely covering the caudal aspect of the sclera of both eyes is a 0.3 cm thick layer of dark red gelatinous material (retrobulbar hemorrhage).

II. Ancillary procedures and laboratory tests pending:

None.

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9. Items on the body (collars, harnesses, etc.): None.

10. Evidence of medical intervention (intravenous catheters, bandages, etc.): Y. The skin over the distal left front and left hind limbs are circumferentially shaved. The subcutaneous tissue below the shaved areas is dark purple along the right cephalic vein and right saphenous vein (intravenous injection sites, presumptive).

D. External Examination (WNL if normal; NE if not examined)

1. Hair coat (general quality and abnormalities/lesions): WNL

2. Head and neck (including eyes, oral cavity, pinnae): The rostral 7.0 cm of the tongue has a 0.5 cm wide black and dry margin. The dorsal and rostral 7.0 cm of the tongue is diffusely dry, dark brown, and rough. On the top of the tongue, 9 cm from the rostral tip, are two 1.0 x 1.5 cm depressions (self-bite marks, presumptive). The underside of the entire tongue is red to purple.

The crown of the maxillary and mandibular incisors are diffusely light pink. The left canine crown is fractured with 70% of the tooth missing. There is a red 0.5 cm focus within the fractured tooth (tooth pulp exposure). The top edges of the mandibular canine teeth are purple (dental attrition). The right buccal mucosa is diffusely red to purple.

On the neck, 15 cm caudal to the tip of the chin, is a 3.5 cm wide x 1.0 cm thick hairless, dark red to black, superficial skin roughening (abrasion, ligature furrow). The hair around the abrasion is stained red (blood). The skin of the head has two small 0.3 cm in diameter, circular skin defects. One defect is on the right side of the nasal planum, approximately 3.4 cm from the right canthus of the eye and approximately 6.2 cm from the tip of the nose. A second defect is on the top of the head, left of the midline, approximately 2.0 cm above the left eye (bite wounds, presumptive).

The sclera of both eyes are diffusely bright red (hemorrhage).

3. Thorax: WNL

4. Abdomen: WNL

5. Thoracic limbs, including nails/hooves: The nail of the 3rd phalanx is partially fractured.

6. Pelvic limbs, including nails/hooves: WNL

7. Genitalia, perineum, and tail: WNL

E. Internal exam (note WNL if within normal limits or NE if not examined):

1. Subcutaneous tissue including mammary glands (carcass skinned? Y/N): Y. The subcutaneous tissue on the midline at the top of the head, approximately 2.0 cm caudal to the eye has a 2.5 x 2.0 cm bright red gelatinous material (hemorrhage). The subcutaneous tissue of the entire head, from the level of the larynx rostrally, is diffusely dark purple. This dark purple area is sharply demarcated by a line from the pale pink caudal neck region (strangulation, presumptive).

2. Body cavities: The thorax contains approximately 50 mL of red tinged fluid (blood).

3. Skeletal muscle, bone and joints (list joints opened): The fascial planes and skeletal muscles surrounding the proximal trachea and esophagus at the level of the larynx (sternohyoideus, sternothyroideus, thyrohyoideus, sternocephalicus

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1. How body was protected (e.g., plastic bag) and stored prior to necropsy (e.g., refrigerated, frozen): The body is submitted frozen in a black plastic bag.

2. Carcass weight: 27.2 kg

3. Items accompanying the body (blankets, food bowls, toys): None.

B. Postmortem changes

1. Post-mortem interval (indicate if estimated): 5 days.

2. Rigor mortis: N/A (frozen)

3. Livor mortis: N/A (frozen)

4. Degree of corneal clouding and collapse: Clear, no collapse (frozen)

5. Discolorations: Widespread pale red discoloration of all tissues (freeze/thaw artifact)

6. Drying of the tongue: The rostral 7.0 cm of the tongue has a 0.5 cm wide black and dry margin. The dorsal and rostral 8 cm of the tongue is diffusely dry, dark brown, and rough.

7. Other (skin slippage, loss of hair, insects, etc): None.

C. Identifying features

1. Species: Canine.

2. Breed: Pit Bull Terrier.

3. Sex: Female Spayed.

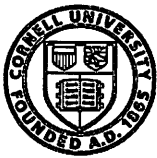
4. Color: Tan and white.

5. Age (indicate if estimated): 1-year-old (per submitter).

6. Special markings/tattoos: Tan body, white marking on neck and underside of hind paws.

7. Scanned for microchip (Y/N): Y, 981/020021789439.

8. Body condition score (indicate scale) or general condition: Purina Body Condition Score 5/9.



Cornell University
Animal Health Diagnostic Center

240 Farrier Road, Cornell University, Ithaca, NY 14853
Ph: 607-253-3900 Fax: 607-253-3943
<https://ahdc.vet.cornell.edu>

Owner: Jackie Page Deep South K9 Resc

12/27/17 (DT)

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Interim Report

Accession Number: **210928-17**

Massapequa Pet Vet - (2171)
DR Ned Horowitz
5330 Merrick Rd
Massapequa, NY 11758
(516) 797-8387

Sampled: 12/09/2017

Received: 12/13/2017

Finalized:

Reference Number: Jackie Page Deep South
K9 Resc

Anatomic Pathology

Department of Biomedical Sciences
Phone: 607-253-3319 | Fax: 607-253-3357

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Body, Whole
Necropsy, Final - results pending
Final Report
210928-17

Forensic Necropsy report

Date: 12/14/17

Time: 1:20pm

Location: Cornell University College of Veterinary Medicine The purpose of the examination is to establish, if possible, the cause of death or reason for euthanasia. The necropsy is performed using the standard Cornell University necropsy procedure.

Those in attendance and their role

Pathologist-in-charge: Gerald Duhamel

Senior Veterinary Student: Sabine Fischer-Daly

Senior Resident: Dr. Mason Jager, DVM

I. Gross Description:

A. Presentation: