

# INFORMATION REDACTED

## Necropsy Report

<b>Case Number:</b>		<b>Report Status:</b>	Final
<b>Date Sample Received:</b>	10/29/2019	<b>Date Sample Collected:</b>	
<b>Owner</b>		<b>Clinician:</b>	
<b>Patient</b>		<b>Clinic:</b>	
<b>Species</b>	Two-toed sloth	<b>Address:</b>	
<b>Breed/Color:</b>	Two-toed sloth/Brown	<b>City/State/ZipCode:</b>	
<b>Sex:</b>	Female	<b>Phone:</b>	
<b>Age/DOB:</b>	09/01/2018	<b>Fax:</b>	

### Clinical History & Diagnosis:

Patient presented for being suddenly non-responsive on 10/26/19. History of proper enclosure, previous exam less than 1 week previously revealed apparently healthy animal. Patient has history of similar episode earlier this year (unknown timing). CPR was performed and intracardiac rescue drugs were administered multiple times. Patient recovered twice then became non-responsive after approximately 5 hours of intensive care. No heartbeat was detected and CPR was halted after 15 minutes. An intracardiac injection of fatal plus was administered for euthanasia.

### Goal of Submission:

Necropsy to determine potential cause of death.

### Samples Submitted:

whole body

### Gross Description:

A necropsy is performed on 10/29/2019. The body is of a juvenile female sloth in good post-mortem condition and poor physical condition (body condition score 1/5). There is minimal muscle mass and the skeleton is The prominences of the shoulder, limbs, hips, and spine are prominent and easily palpable. There is alopecia 4 cm by 4 cm over the pelvis bilaterally. There is dark green material encrusted in the hair under the chin. There is a 6 x 3 cm shaved region over the left antebrachium. There are petechia along the shaved skin and on the lateral aspect there are two incisions, both approximately 0.6 x 0.4 cm and approximately 1 cm apart. There are multifocal 1-2 cm diameter areas of hypotrichosis and slight crusting or hyperkeratosis dorsally over the 3rd and 4th vertebrae and bilaterally over the .dorsal scapula.

There is yellow-green discoloration of the skin, subcutaneous tissue and skeletal muscle on the caudal abdomen extending on the right side from the level of the 14th rib to the caudal aspect of the ribcage, extending to approximately 1 cm from midline on the left of the dorsum to the midline of the abdomen ventrally. The area involved is approximately 9 cm by 12 cm.

The lungs are non-collapsing, with multifocal palpably firm, pitted, 0-1-1.5 cm, red-brown areas contrasting with the surrounding pink spongy lung tissue. Sections from all lung lobes float in formalin. There is approximately 1 ml dark red brown fluid in the pericardial sac and there is a 0.8x0.9 cm region of the wall of the right ventricle that is dark red-black. There is granular red-brown material in the heart chambers and adhered to the endocardium (euthanasia artifact). The heart weight is 5 g.

There is 3-5 mL of red-tinged clear fluid in the abdominal cavity. All chambers of the stomach are markedly gas distended. Within the lumen there is approximately 10 ml green, flocculent fluid surrounding/absorbed by two soft, soggy trichobezoars, 8 x 4 x 3 cm and 2 x 1 x 1 cm. The mucosal surface of the glandular stomach is mottled dark red and dull with a faintly coarse texture. The smaller trichobezoar and a narrowed portion of one end of the large trichobezoar and positioned in and form a case of the pylorus. The small and large bowel are empty and contain minimal to no ingesta/fecal material.

There is minimal visceral body fat and when present the small fat stores identified are tan and gelatinous (serous atrophy).

The adrenal glands are bilaterally symmetrical and 0.9 x 0.5 x 0.4 cm.

There is approximately 5 ml clear yellow urine in the urinary bladder.

An 1.1 x 0.9 cm area of red and blue-black discoloration (hemorrhage) is present on the soft tissue overlying the skull on the caudal central aspect of the occipital bone. There are three 0.3-0.5 cm diameter red and blue-black areas centrally on the dorsal head over the caudal-dorsal aspect of the frontal bone.

All organs not described are within normal limits.

Samples of liver, kidney, and lungs are saved frozen at -20 C for additional testing if indicated.

#### **Microscopic Description:**

**Brain:** There is hemorrhage in the leptomeninges and Virchow Robbin spaces of the frontal cortex. The white and gray matter are mildly hypercellular (gliosis).

**Skin and muscle mid body wall:** There is infiltration of the dermis, subcutis, and interstitium of the skeletal muscle by macrophages that contain green and black granular pigment. There is a small amount of bright yellow pigment in the interstitium. There is minimal adipose tissue and this is composed of partially to entirely collapsed adipocytes with thickened membranes and faintly to moderately eosinophilic, glassy cytoplasm.

**Adrenal glands:** There is diffuse marked hypertrophy of the cortex involving primarily the zona fasciculata. Epithelial cells are swollen and rounded and have vacuolated, pale cytoplasm.

**Liver:** Hepatocytes are diffusely small and cuboidal and form small, thin cords a single hepatocyte thick.

**Lungs:** There is fibrosis extending from areas of thickened pleura into the parenchyma and regionally expanding interalveolar septa and surrounding small airways. Adjacent to this the areas of interstitial fibrosis there is often a small region of atelectasis. Throughout the remainder of the lung lobes there are patchy to diffuse regions in which alveolar lumens are filled with pale pink fluid. Rare erythrocytes and foamy macrophages are present in the fluid.

**Heart:** There is hemorrhage and rupture of myocytes within the right ventricular free wall.

**Stomach:** There is multifocal hemorrhage in the lamina propria. Areas not obscured by hemorrhage contain few to moderate numbers of lymphocytes, plasma cells, and neutrophils.

**Skin of dorsal trunk:** There are patchy areas of thickening of the stratum corneum with compact, disorganized orthokeratin. Follicles are smaller than normal (relative to adjacent skin) and mostly in telogen stage. Some follicles contain broken hairs and some do not contain hairs. There is minimal adipose tissue and this is composed of partially to entirely collapsed adipocytes with thickened membranes and faintly to moderately eosinophilic, glassy cytoplasm.

#### **Morphologic Diagnosis:**

Final Anatomic Diagnoses:

1. Emaciation with serous atrophy of fat.
2. Contusions, cutaneous and periosteal, multifocal, acute to subacute, caudal and dorsal skull.
3. Hemorrhage and gliosis, acute to subacute, mild, frontal cortex.
4. Contusion, cutaneous and muscular, locally extensive, chronic, central to caudal lateral and dorsal body wall.
5. Multifocal and coalescing subpleural and interstitial fibrosis and associated atelectasis, chronic, multifocal, mild to moderate, lungs.
6. Acute pulmonary edema, diffuse, moderate, lungs.
7. Trichobezoars, stomach.
8. Gastritis, neutrophilic and lymphoplasmacytic, hemorrhagic, mild to moderate, stomach.
9. Adrenal cortical hyperplasia, chronic, moderate, bilateral adrenal glands.
10. Hepatocellular atrophy, diffuse, moderate to marked, liver.
11. Hemorrhage, acute/peracute, right ventricle.
12. Multifocal hypotrichosis and hyperkeratosis associated with follicular atrophy, skin of dorsal trunk.

#### **Comments:**

The proximal cause of death was likely cerebral swelling secondary to blunt force trauma to the head. Based on the location of the bruises over the back and top of the head, potential causes for the head injury include a fall, having the head caught and subsequent trauma during freeing the head, or blows from hard objects, either directly or thrown.

The more chronic and extensive contusion on the mid to caudal body wall is indicative of an injury during restraint or other inappropriate handling.

Additional findings of emaciation, serous atrophy of fat, and adrenal cortical hyperplasia indicate an animal in a severely

debilitated physical condition and experiencing a high level of stress.

The trichobezoars may have created a partial or transient obstruction, and whether or not this was the case, their presence and associated gastritis could have contributed to inappetance and consequently to failure to thrive and very poor body condition.

As is often the case with captive wild animals, a constellation of problems present include chronic and severe husbandry related problems. Inappropriate handling by the public would have at best placed this animal under even greater stress than the captive situation generally, and at worst, subjected her to physical injury.