

## INFORMATION REDACTED

### Final Anatomic Diagnosis

This is the final diagnosis report for the specimen submitted 8/18/2020.  
Any additional results will be forwarded upon completion.

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Date Received	Owner	Species / Breed	Sex
8/18/2020		3 d	Sloth, Two-toed Male

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#### History:

X-rays revealed abnormal general white opacity in the lungs (can be post-mortem change) and lots of gas in the GI tract (through stomach and intestines). The bones appeared normal for a neonate.

#### Hx from INFORMATION REDACTED

: This sloth was born 8/10 and died 8/13. The day he was born he was having a hard time holding onto mom and was not positioned correctly on her. We decided to pull him for keepers to handrear because he we was cold, not nursing and we were worried he would fall. He was engaged in the feeding and was trying to suckle. Most of the time he was active at feeding, wiggling around, on occasions he did get very limp. The morning of 8/13 he was dead when I woke up to feed him at the 6am feeding. The dam's age is approximately 11 years old.

#### Gross Description:

External exam: No fur noted on the ventrum, consistent with congenital abnormality. Umbilicus was slightly opened, no visible evidence of infection seen. No additional abnormal findings.

Lungs: Marked congestion diffusely in the lungs. This can be (and is likely) a postmortem change but may also indicate pneumonia.

Digestive system: No cleft palate. The stomach and small intestine were markedly distended with gas, with a small amount of milk seen in the stomach. This can occur with maldigestion/malabsorption in sloths. The anatomy was normal.

Liver: The ductus venosus was open.

Adrenal glands: Markedly enlarged (approximately the same size as the kidneys). While fetal sloth adrenal glands can be larger than in other species, this size seems abnormal. This can occur secondary to several congenital abnormalities in humans, secondary to massive stress, and there is one case report of one neonatal sloth with massively enlarged adrenal glands whose mother had succumbed to Salmonella.

Male. Both testes found in normal location.

#### Histological Description:

Slide 1

#### Cerebrum

- Multifocal mild hemorrhage within the meninges

Slide 2

Cerebellum, thalamus, hippocampus, midbrain

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- Multifocal meningeal hemorrhage and congestion

Medulla

- NSF

Slide 3

Lung

- Diffuse congestion, multifocal mild edema
- Mild interstitial hemorrhage

Slide 4

Liver

- Large numbers of macrophages containing phagocytized RBCs in the sinusoids - Slight vacuolar change in the hepatocytes, consistent with glycogen accumulation (WNL for neonate)
- Spleen
- Lack of lymphoid follicles
- Moderate numbers of erythrophagocytic macrophages throughout the parenchyma - Mild extramedullary hematopoiesis

Gallbladder

- NSF

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Heart, thymus

- NSF

Slide 6

Thymus, testes

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Slide 7

Kidney

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Slide 8

Umbilical vein

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Diaphragm

- Mild edema in the connective tissue

Slide 10

Adrenal gland

- the cortices are of uniform thickness (approx 4-5X the width of the medulla) and contain a prominent fetal zone characterized by cords or large polygonal cells with abundant, finely granular, lightly eosinophilic cytoplasm
- mild multifocal congestion

Urinary Bladder

- NSF

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Stomach

- NSF

Slide 12

Pancreas

- Moderate autolysis

Stomach

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Slide 13

Intestinal tract

- Moderate autolysis

Slide 14

Haired skin (2 sections)

- One of the sections contains less well-developed hair follicles compared to the other section

Slide 15

Sternum

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Slide 16

Eyes

- NSF

Final Diagnosis:

Liver and spleen, prominent erythrophagocytosis

Cause of Death:

Undetermined

Comments:

A definitive cause of death for this neonatal sloth was not apparent on histologic evaluation. There was no evidence of infectious disease, aspiration pneumonia, or obvious congenital abnormalities. The size of the adrenal glands,

which were noted to be roughly the same size as the kidneys at necropsy, appears to be within normal limits for neonatal two and three-toed sloths. Histologically, the adrenal cortices contained a broad fetal zone similar to that reported in neonatal sloths (1). No hyperplastic or degenerative changes were appreciated.

One finding that could be significant was frequent phagocytosis of red blood cells by resident macrophages in the liver and spleen. Without another neonatal sloth to compare to (neither nor currently have any in the archives), it's unclear whether this would be an expected finding for the species. Erythrophagocytosis can be seen in foals with neonatal isoerythrolysis and human infants with hemolytic conditions; however, affected neonates also typically have icterus and other clinical signs of hemolysis that were not reported in this sloth.

In the skin, the hair follicles in one of the submitted sections appeared less developed than those of the second

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section. The less-developed follicles may correspond with the lack visible of fur on the ventrum. Mild congestion and hemorrhage in multiple organs was consistent with agonal/postmortem changes.

References:

1) Benirschke, K. Comparative placentation. <http://placentation.ucsd.edu/homefs.html>. Accessed 10/12/2020.

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