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31.10.2019

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**Tierart:** Nebengelenktiere (Xenarthra) **Rasse:** Zweifingerfaultier (Choloepus) **Alter:** 11 Tage **Farbe:** schwarz-braun **Altersgruppe:** juvenil **Identifizierungsnr:** keine ID **Geschlecht:** w **Einsendung:** Tierkörper **Kastriert:** nein **Todesart:** Exitus **Gewicht:** 415 g **Todesdatum:** 22.10.2019

#### **ANAMNESE:**

Bottle-fed since the 18th October 2019. The sloth's mother could not be identified since there are several animals in this group.

Question: Cause of death? Please check for Streptococcus sp.

Please gather an additional, separate tissue sample in formalin for additional DNA testing at the Papillorama.

**Frischezustand:** Geringgradige Autolyse. **Freshness: Low level of autolysis.**

**Nährzustand:** Geringgradig abgemagert.

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##### **MAKROSKOPISCHE BEFUNDE:**

External appearance: The right auricle is moderately swollen and covered by a small amount of yellowish, dry material. There is a small amount of yellow, creamy material present in the external auditory canal. The mucosa is unremarkable.

Umbilicus: Externally unremarkable. Subcutaneously there is a small amount of yellowish, creamy pus visible. The remains of the umbilical arteries and vein are unremarkable.

Oesophagus: The mucosa is covered multifocally by a small amount of white material. The mucosa is unremarkable

Trachea: Empty. The mucosa is unremarkable.

Lung: The left cranial lobe is dark red coloured and displays a slightly increased consistency. In all the lobes there are multifocal, randomly distributed dark red areas measuring up to 0,4 cm in diameter visible.

Liver: Displays diffusely a marbled red white colour.

Stomach: Filled with a large amount of creamy, slightly foamy, pale yellow content. The mucosa is unremarkable.

Small intestine: Filled with a moderate amount of creamy, beige content. The mucosa is unremarkable.

Large intestine: Filled with a moderate amount of creamy, pale green content. The mucosa is unremarkable.

Rectum: Contains a moderate amount of pasty, pale green content. The mucosa is unremarkable. The remaining organs are macroscopically unremarkable.

##### **HISTOLOGISCHE BEFUNDE:**

Right auricle and ear canal: Severe, diffuse and deep epidermal ulceration of the auricle, which is covered by a massive amount of degenerated neutrophils, bacterial colonies, cellular debris and fibrin. Multifocally within the

dermis there are abundant infiltrates of denegerated neutrophils, as well as many fibrin thrombi visible. The external ear canal is filled with many neutrophils, bacteria, cellular debris and fibrin. Lung: Multifocal to coalescing within sharply demarcated lobes there is a severe, mainly neutrophilic infiltration of bronchi, bronchioli and adjacent alveoli. In these areas, the alveolar walls are often necrotic with fibrin release and cellular debris accumulation. The interstitium and the pleura are infiltrated by degenerated and intact neutrophils with concurrent severe fibrin and cellular debris accumulation. In the lobules that are not affected by the suppurative inflammation, the alveolar walls appear moderately thickened due to accumulations of moderate numbers of mononuclear cells (suspected). Liver: Within the sinusoids there are increased numbers of inflammatory cells present, which are mainly composed of neutrophils and fewer lymphocytes, plasma cells, and histiocytes. Multifocally within the sinusoids there are many extramedullary hematopoiesis foci visible. All hepatocytes display small intracytoplasmic vacuoles (compatible with glycogen storage). Spleen: Multifocal, severe extramedullary hematopoiesis. The kidney is histologically unremarkable.

#### Allgemeine Bakteriologie:

Leber: Kulturell mittelgradiger Gehalt (++) an *Corynebacterium pseudotuberculosis*. Ohrtopfer: Kulturell hochgradiger Gehalt (+++) an *Pasteurella multocida* sowie mittelgradiger Gehalt (++) an *Staphylococcus* sp. und Mischflora.

Lunge: Kulturell hochgradiger Gehalt (+++) an *Corynebacterium pseudotuberculosis*.

#### General bacteriology:

Liver: Culturally moderate content (++) of *Corynebacterium pseudotuberculosis*. Ear swabs: Culturally high content (+++) of *Pasteurella multocida* and medium content (++) of *Staphylococcus* sp. and mixed flora.

Lungs: Culturally high content (+++) of *Corynebacterium pseudotuberculosis*.

#### Direktnachweis mittels Polymerase-Ketten-Reaktion (PCR):

Resultat des genotypischen Nachweises: *Staphylococcus delphini*.

Direct detection by means of polymerase chain reaction (PCR):

Result of the genotypic detection: *Staphylococcus delphini*.19\_4653 Seite 2 von 3

#### MORPHOLOGISCHE DIAGNOSE:

Lung: Severe, multifocal, subacute, fibrino-suppurative and necrotic bronchopneumonia Right ear: Severe, diffuse, subacute, necrotizing and suppurative dermatitis and otitis externa with intralesional bacteria and fibrin thrombi

Umbilicus: Mild, diffuse, subacute, suppurative omphalitis

Liver:

1.) Severe, multifocal to coalescing extramedullary hematopoiesis;

2.) Glycogen storage (suspected)

Spleen: Moderate, multifocal, extramedullary hematopoiesis

#### KOMMENTAR:

The main findings following necropsy of the submitted two-toed sloth are a severe bronchopneumonia, an otitis externa and dermatitis of the right ear and an omphalitis. Although no *Streptococcus* sp. could be identified in the bacteriological analysis of liver, the external ear content and the lung, varying loads of several bacterial pathogens could be isolated from the same organs, namely *Corynebacterium pseudotuberculosis*, *Pasteurella multocida* and *Staphylococcus delphini*.

Alltogether, these findings are compatible with an immune impairment, namely an inadequate colostral immunity. Additionally, it cannot be excluded that the bronchopneumonia is a consequence of milk aspiration. A formalin-fixed liver sample has been collected as requested for additional DNA testing.

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