Signalment & History

- Signalment
  - 8 yr-old, F Columbian red tailed boa constrictor

- Presented for
  - Burns on ventrum noticed by owner that day
  - Intermittent ptyalism of unknown duration

- Significant husbandry information
  - Housed in glass aquarium with a bumblebee ball python
  - Under tank heat mat

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Physical Examination

• QAR and thin (BCS 2/5)
• Dysecydysis
• Severe thermal burns on ventral scutes over 2/3 of the body
• Righting reflex was present but slow

• Treated with fluids, vitamins A, D, and E, antibiotics and instructions for soaking to help relieve dysecydysis.
Clinicopathologic Findings

- **Biochemistry**: No significant abnormalities
- **CBC**:

<table>
<thead>
<tr>
<th></th>
<th>VALUE</th>
<th>*REFERENCE RANGE</th>
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<tbody>
<tr>
<td>PCV (%)</td>
<td>20</td>
<td>24-40</td>
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<td>WBC (x10³/μL)</td>
<td>2.8</td>
<td>4-10</td>
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<td>Heterophils (%)</td>
<td>14</td>
<td>16-58</td>
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<tr>
<td>Lymphocytes (%)</td>
<td>7</td>
<td>10-60</td>
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<td>Monocytes/ Azurophils (%)</td>
<td>79</td>
<td>0-6</td>
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<tr>
<td>Eosinophils (%)</td>
<td>0</td>
<td>0-3</td>
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<tr>
<td>Basophils (%)</td>
<td>0</td>
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</table>

* Reference intervals from Campbell’s Exotic Animal Hematology and Cytology
Interpretation

- Consistent with boid inclusion body disease
- Recommended testing the python as well
Recheck Physical Exam

• Returned for recheck two weeks later
  – Dull, poorly responsive
  – BCS 1.5/5
  – Erythematous lesions now covering 90% of the skin
  – Large areas of necrotic skin
  – Sloughing of ventral scutes
  – Snake mites found on patient
  – Absent righting reflex
• Snake was euthanized and submitted for necropsy
Gross Necropsy Findings

- Gross findings were consistent with the clinical findings
  - dysecydysis
  - thermal burns
  - snake mite infestation
Histopathologic Findings

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Brain (1000x oil)
Liver (400x oil)
Histopathologic Findings

Trachea (400x oil)
Snake Mite!!
Interpretation: boid inclusion body disease (BIBD)

- Viral disease of snakes of the families Boidae and Pythonidae
- Case reports of BIBD-like disease in captive palm vipers and one king snake
- Causative virus was thought to be a retrovirus. Evidence now suggests it is an arenavirus.
- Arena virus isolated and produced inclusions in cell culture in one study.
BIBD Clinical Signs

Pythons

- Torticollis
- Opisthotonos
- Loss of righting reflex
- Flaccid paralysis
- Death within weeks

Boa Constrictors

- Neurologic signs similar to those in pythons
- Stomatitis
- Pneumonia
- Lymphoproliferative disorders
- Variable disease progression – death within weeks to months
BIBD Transmission

- Not completely understood. Proposed routes include:
  - Direct contact
  - Vector borne via the snake mite (*Ophionyssus natricis*)
  - Venereal
  - Vertical transmission

https://www.esccap.fr/images/diagnose/sliders/ophionyssus-natricis-sur-serpent.jpg
BIBD Diagnosis

- Cytologic observation of intracytoplasmic inclusions:
  - Smooth pale blue staining in erythrocytes and leukocytes on Wright’s stained blood films
  - Smooth eosinophilic to amphiphilic inclusions in leukocytes on H&E stained buffy coat smears
BIBD Diagnosis

- Histopathologic observation of smooth eosinophilic to amphophilic cytoplasmic inclusions on H&E stained tissues
  - CNS tissue
  - mucosal epithelial cells overlying the esophageal tonsils
  - epithelial cells lining the GI and respiratory tracts
  - hepatocytes
  - pancreatic acinar cells
  - renal tubular epithelial cells
  - lymphoid cells in the esophageal tonsils
BIBD Diagnosis

- Experimental serodiagnostics
  - IFA and Western blot successful in detecting anti-reptarenavirus antibodies in some infected snakes
  - Study also found that many confirmed BIBD+ snakes tested negative
Acknowledgements

• Tatiana Rothacker, DVM
• Melissa Nau, DVM
• Janice Mueller, MT
• Jill Newland, MT
• Jessica Penner, MT
• Stephanie Ochoa, MT
References

Questions?