Case #: C03-0427

Inclusion body disease (IBD) and Cryptosporidiosis in a boid snake

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Signalment

2 year old male boa constrictor (*Boa constrictor*)
History

- Presented to the referring veterinarian with a history of chronic regurgitation of several months duration

- Another boid in the collection was being monitored for a recurrent respiratory problem.

- A python in the collection showed acute signs of neurologic disease and died after having been unable to right itself.

- Formalin-fixed tissues of the boa were submitted for histologic evaluation.
Stomach: muscularis

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Morphologic Diagnoses

- Proliferative gastritis, chronic, diffuse, marked, with intralesional protozoa consistent with Cryptosporidium sp.

- Eosinophilic intracytoplasmic inclusion bodies, multifocal, severe, in the mucosal epithelium, muscularis and serosal ganglia of the stomach consistent with inclusion body disease
Cryptosporidiosis

- Cryptosporidium is a protozoal parasite causing a self-limiting infection in immunocompetent mammalian hosts.

- *Cryptosporidium serpentis* is the most common pathologic species found in the snake.

- Proliferative gastritis in reptile hosts that is fatal.

- Typically progresses to an advanced disease state prior to the onset of clinical signs.

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Cryptosporidiosis

- Ingested oocysts release sporozoites which invade the brush border of the gastric mucosal epithelium.

- Infection causes a proliferative gastritis, resulting in a decreased gastric lumen size and severe mucosal irritation.

- Affected animals may succumb to acute disease, or may progress along a clinical course of up to two years.
Inclusion Body Disease

- Inclusion body disease (IBD) of boid snakes has been recognized since the 1970s

- Signs of infection in boas include
  - Central nervous system disorders
    - Inability to control body movements
    - Inability to right itself
    - "Star-gazing"
    - Inability to strike or constrict
  - Gastrointestinal abnormalities
    - Chronic regurgitation
    - Extreme weight loss
  - Respiratory infections

Photo Courtesy of Dr. Elliott Jacobson

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Inclusion Body Disease

- Characteristic intracytoplasmic inclusion bodies observed in:
  - Epidermal cells
  - Oral mucosal epithelial cells
  - Visceral epithelial cells
  - Neurons

- The causative agent is currently unknown but lesions have been associated with the presence of a retrovirus
Two fatal diseases, one unlucky snake

- Individually, either disease had the potential to result in chronic regurgitation and anorexia
- Cryptosporidiosis
  - Gastric hyperplasia and intralesional protozoa
  - Proliferative gastritis with a decreased lumen size resulted in chronic regurgitation
- Inclusion Body Disease
  - Inclusions within the gastric mucosal epithelium and were found within all tissues evaluated
  - Disseminated disease results in neurologic and cellular dysfunction manifesting as chronic regurgitation
- No known treatment of either disease makes these of particular concern with management of collections
Questions?
References


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