Case L1402246

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Signalment and History

• 2-year-old, male Southern water snake (*Nerodia fasciata* ssp. *fasciata*)
• Collected as a juvenile on zoo grounds
  – September 2011
• Diet: Locally caught fish (*Gambusia* sp.)
• Found dead in exhibit
  – February 10, 2014

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GROSS FINDINGS
HISTOLOGIC FINDINGS
Morphologic Diagnoses

• Stomach: Severe, chronic, multifocal necrotizing and heterophilic gastritis and coelomitis with intralesional bacteria
• Liver: Severe, acute, multifocal, necrotizing hepatitis with intralesional bacteria
• Pancreas: Severe, acute, multifocal, necrotizing and heterophilic pancreatitis with intralesional bacteria
• Pentastomiasis
Ancillary Diagnostics

• Bacterial Culture
  – Liver: *Klebsiella* sp. and *Proteus* sp., moderate growth
  – Large Intestine: *Salmonella* sp.

• PCR
  – *Salmonella enterica* ssp. *arizonae*, formerly *Salmonella choleraesuis* ssp. *arizonae*
Parasitology

- Parasitic Identification
  - Early life stage pentastomes (subclass *Pentastomida*)
  - *Porocephalus* sp. or *Armillifer* sp.

- Optimal staining with Movat's pentachrome or Masson's trichrome stain.

Pentastomid stained with Masson’s trichrome. 10x.
[wwwnc.cdc.gov](http://wwwnc.cdc.gov)
Discussion

- Cause of death: Severe necrotizing gastritis, hepatitis and pancreatitis (sepsis) caused by *Salmonella*.
- Gastrointestinal system: Primary source of bacteria
- Pentostomiasis: Incidental finding
Discussion

- *Salmonella* spp.: Commonly isolated from the gastrointestinal tract of healthy snakes\(^1,2\)

- *S. arizonae*\(^3,1\)
  - High tendency to migrate to nonenteric sites
  - Primary agent of infection in both immunosuppressed and healthy snakes

- Common lesions associated with *Salmonella* infection\(^2\)
  - Necrotizing stomatitis
  - Necrotizing enteritis
  - Multifocal necrotizing hepatitis
  - Splenitis
  - Septicemia
References

