History and Signalment

• 2.5 month old American alligators (*Alligator mississippiensis*)

• Animals originated from an alligator farm in South Georgia

• The farm had recently had several losses (40) in animals of this age group

• Animals would acutely become list-less, lose weight, then die
Gross necropsy

• Three alligators (2.5 months old) were submitted to the TVDIL for necropsy
• The animals were moribund at submission and were humanely euthanized
• Gross findings
  • 1 animal the anterior chamber of both eyes were cloudy beige to grey and the corresponding conjunctiva was overlaid with mild amounts of light yellow-beige exudate
  • No significant gross abnormalities were observed in the other 2 animals.
Histopathology – Brain (submitted slide)

• Meninges expanded by moderate to high density perivascular aggregates of heterophils, macrophages, and fewer multinucleated giant cells.

• Ventricular spaces contained similar high density aggregates of inflammatory cells intermixed with hypertrophied and hyperplastic ependymal cell projections

• Amongst the inflammation and often within macrophages were numerous rod-shaped bacteria.
Other pertinent histopathology

• Heart – All animals
  - Cardiac myofibers separated by multifocal, moderate to high density aggregates of heterophils, macrophages, and variable amounts of karyorrhectic debris

• Kidney and Spleen – All animals
  - Glomerular capillaries are often occluded by an eosinophilic hyalinized material.
  - In all animals a few small caliber vessels are occluded by a similar material.

• Eye – one animal
  - Within the anterior chamber, overlying the iris, and abutting the anterior lens capsule are moderate to high numbers of heterophils and macrophages.
  - Near the optic disk, a few aggregates of heterophils and macrophages separate retina from the retinal pigment epithelium.
Final Diagnoses

• Meningoencephalitis, heterophilic and histiocytic, subacute to chronic, multifocal, marked with intrallesional bacteria, brain. (case submission).

• Myocarditis, heterophilic and histiocytic, subacute to chronic, multifocal, marked, heart.

• Thrombi formation, acute, multifocal, kidney and spleen.

• Anterior uveitis, heterophilic and histiocytic, acute, multifocal, marked with chorioretinitis, mild, eye (1 animal).
Ancillary Diagnostics and Conclusion

- Gram negative septicemia
  - Common among farmed crocodilians
  - Common agents: *Aeromonas hydrophila*, *Salmonella* sp, *E. coli*

- Bacterial culture
  - Culture of the heart, liver, spleen, and kidney of all animals yielded moderate growth of: *Providencia rettgeri*
Providencia rettgeri

• Gram negative bacillus in the family Enterobacteriaceae

• Documented to cause septicemia with meningitis in saltwater crocodiles (*Crocodylus porosus*).

• Single case report of the agent causing granulomatous pneumonia and hepatitis in a crocodile monitor (*Varamus salvadorii*).

• In humans: the genus of bacteria has been known to cause wound infections and nosocomial infections (especially urinary tract infections).
Acknowledgments

• The Necropsy, Bacteriology, Histology, and Virology/Serology Sections at the UGA-TVDIL
References

Questions?
Bovine Next Generation Sequencing Panel
Currently offered at the TVDIL
*Please talk with Rebecca Wilkes and/or find further information in the lobby

Respiratory Pathogens
- BVDV with typing
- IBR
- BoCV
- Influenza D
- PI3
- BRSV
- Adenovirus 3
- Mycoplasma species
- Histophilus somni
- Pasteurella multocida
- Mannheimia haemolytica
- Trueperella pyogenes
- Bibersteinia trehalosi

Enteric Pathogens
- Coronavirus
- Rotavirus (A,B,C)
- E. coli toxins
- Salmonella
- Johne’s
- Clostridium perfringens (toxin typing)
- Giardia
- Cryptosporidium

Repro Pathogens
- BHV-4
- IBR
- BVDV
- Bluetongue/EHD
- Brucella spp.
- T. foetus
- Anaplasma marginale
- Listeria monocytogenes
- Ureaplasma
- Neospora
- Leptospirosis species
- Toxoplasma
- Chlamydia species
- Campylobacter fetus fetus and venerealis

Mastitis
- Staphylococcus aureus
- Coagulase negative
- Staphylococcus species
- Streptococcus agalactiae
- Streptococcus uberis
- Streptococcus dysgalactiae
- E. coli toxins
- Mycoplasma bovis
- Prototheca
- Pseudomonas
- Klebsiella
- Zygomycetes
- Aspergillus
- Nocardia