CASE # 10
41st Annual SEVPAC
May 18, 2013

Kathy-Anne Clarke
Lady

- 10 year old intact female tiger
- One episode of a grand mal seizure & she recovered on her own
- Altered mentation and behavior
- She was able to eat normally for the next 2 days
- Was found dead 5 days after the seizure episode
- Previously vaccinated for canine distemper
Sanctuary

- Located in NE MS, founded in 1990
  [http://www.cedarhillanimalsanctuary.org/]
- 25 acres, closed to the public
- Mainly large exotic cats & domestic cats
Microbiology

- Mixed culture from the lung
  - *Escherichia coli*
  - *Aeromonas sobria*
  - *Enterococcus sp.*
  - *Bacillus sp.*
  - *Clostridium perfringens*
Diagnosis

Drowning associated with:
- Alveolar septal edema
- Diffuse intravascular hemolysis
- Hemoglobin crystal formation
- Intra-alveolar bacteria
RBC Lysed RBC

Hemodilution/hemolysis

Free hemoglobin

Low O² tension

Blood stagnant in vessels

Hemoglobin crystallizes
Freshwater drowning

- Trachea, lungs and stomach filled with water
- Emphysema aquosum - lungs are waterlogged and overdistended, do not collapse on removal from the body
- Large bacteria/ saprophytes in airways
- Fresh water is hypotonic with respect plasma therefore leads to hypervolemia
- Conversely salt (sea) water is hypertonic thus fluid shifts into alveoli resulting in hypovolemia
Drowning

- Death by drowning remains one of the most difficult diagnoses in forensic medicine
- In humans there is no ideal diagnostic test used for definitive proof of drowning
- Detection of diatoms and algae in the lungs still considered as the “golden standard”

- Chemical markers also used (strontium, fluorine, bromine)
- Humans inhale lower volumes of water when compared to animals as a result of voluntary breath-holding & laryngospasm triggered by effect of water on upper airways
Questions?