Morbilliviral pneumonia in a bottlenose dolphin (*Tursiops truncatus*)

Lisa L. Farina, DVM, Diplomate ACVP
University of Florida
Signalment and history

• Juvenile male bottlenose dolphin (*Tursiops truncatus*)
• Found dead floating at Clearwater Beach, Florida
Diagnostic imaging
Diagnostic imaging
Electron microscopy—lung
Final anatomic diagnosis

• Bronchointerstitial pneumonia, neutrophilic and histiocytic, subacute, multifocal, mild, with syncytial cells, eosinophilic intranuclear inclusions and rare eosinophilic intracytoplasmic inclusions.
Additional diagnostics

• Culture of the lung and brain yielded *Aspergillus fumigatus*.

• PCR and sequencing confirmed dolphin morbillivirus.
Marine mammal morbilliviruses

• First marine mammal morbilliviral epizootic in Atlantic bottlenose dolphins in 1987
• Morbilliviral infections have been reported in:
  – harbor porpoises
  – Striped, white-beaked and bottlenose dolphins
  – gray, harp, monk, Baikal, Caspian and harbor seals
  – Fin, pilot and pygmy sperm whales
Marine mammal morbilliviruses

- Morbilliviruses which can infect marine mammals include:
  - CDV—Canine distemper virus (pinnipeds)
  - PDV—Phocid distemper virus
  - PMV—Porpoise morbillivirus
  - DMV—Dolphin morbillivirus
  - MSMV—Monk seal morbillivirus*

A maximum likelihood tree of N protein fragment sequences (121 nucleotides) of different morbilliviruses.

http://www.jobsitesupply.com/img/dolphin-border2_detail.jpg
Permission granted only for viewing on SEVPAC website
Marine mammal morbillivirus lesions

• Bronchointerstitial pneumonia—most common lesion
• Lymphoid depletion
• Nonsuppurative encephalitis
• Syncytial cells and eosinophilic intranuclear and intracytoplasmic inclusions
• Mastitis with syncytia and ulcerative stomatitis have been observed in striped dolphins.
Marine mammal morbillivirus

- Co-infections with *Toxoplasma gondii*, *Bordetella bronchiseptica*, herpesvirus and *Aspergillus* (or *Aspergillus*-like) fungi, and a variety of other bacteria have been previously reported.
References

Special thanks

- Histology laboratory at UF
- Pathology residents and faculty at UF
Questions???

http://www.npr.org/blogs/thetwo-way/2013/02/20/172538036/researchers-find-that-dolphins-call-each-other-by-name