CASE  #A13-13495

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Signalment and History

- Yellowface Angelfish (*Pomacanthus xanthometopon*)
- Unknown age and sex
- Routine entrance exam normal
- Illness 2 weeks after arrival
- Two day period of clinical signs:
  - Anorexia
  - Increased ventilation rate
  - Loss of buoyancy
Gross lesions

- Necropsy was performed by attending staff
  - Fair body condition
  - Segmental hemorrhage of the distal intestine
Ancillary diagnostics

- Culture- aerobic
  - Intestine
  - Liver
  - Spleen
- Mycobacterial culture
  - Liver
  - Spleen
Morphologic diagnoses

- **Liver:** Cytomegaly, perivascular, multifocal, mild, with intracytoplasmic inclusion bodies

- **Spleen:** Subacute, diffuse severe necrotizing splenitis with widespread cytomegaly and intracytoplasmic inclusion bodies

- **Intestine:** Hemorrhagic enteritis, segmental, submucosal, moderate, with multifocal cytomegaly and intracytoplasmic inclusion bodies
Confirmatory diagnostics

- PCR positive for...

Megalocytivirus
Why are the cells so GARGANTUAN?

- **Family- Iridoviridae**
  - Genus-Lymphocystis virus
    - Ranavirus
    - Megalocytiviruses

- **Megalocytiviruses:**
  - Infectious spleen and kidney necrosis virus
  - Large 120-300nm, cytoplasmic
  - Ds DNA virus
  - Enveloped icosahedral capsid
Megalocytiviruses

- Emerging disease
- Threat to aquaculture and ornamental fish trade
- Fresh and saltwater species affected
- Identified in numerous fish species
- Infectious spleen and kidney necrosis virus (ISKNV)
  - All are variants of this single species originally isolated from Chinese mandarin fish (2000)
  - Share >94% sequence homology based on major capsid protein and ATPase genes
Megalocytivirus

- Route of infection unknown
- Affected cell type unknown
  - Virus is mesotheliotropic, parenchymal epithelial cells spared

- Clinical signs and pathological changes:
  - High mortalities, epidermal pallor or darkening, pale gills, labored respiration, splenomegaly
  - Widespread distinctive hypertrophied cells in perivascular connective tissues
    - Large, basophilic, foamy to granular intracytoplasmic inclusions that displace nucleus peripherally
    - Most tissue damage results from vascular occlusion and ischemia
Questions?