EQUINE LUNG: IT DIDN'T READ THE BOOK!

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**SIGNALMENT**

- Tennessee Walking Horse
- Neutered male
- 4-years-old
- 755-lbs

provided by Stuart Vesty Photography
CLINICAL HISTORY

- Patient presented to TUSVM-LAC on 9/14/12 for a cough & anorexia ~2 weeks after attending a horse show in AL.
- Presumed to be immunocompromised (according to owner)
- No vaccine history
- Last Coggin’s test: Negative (May 2012)
- Referring vet stated increased WBC, flaring nostrils and dehydration on 9/7/12
  - prescribed Banamine, Gentamycin and Penicillin for 5 days
- Still had temp of 103°F on 9/13/12
CLINICAL DIAGNOSTIC WORK-UP

- **Physical exam**
  - BCS: 3/9
  - Febrile- 103.8 F
  - HR: 68 BPM (Tachycardia)
  - RR: 28
  - Flared nostrils
  - ~5% dehydrated
  - Cough
  - Anorexia
CLINICAL DIAGNOSTIC WORK-UP

• CBC- unremarkable
• Blood chemistry- unremarkable
• Fibrinogen (range: 100-400mg/dl)
  • 9/14/12: 1200mg/dl
  • 9/19/12: 800mg/dl
  • 9/26/12: 600mg/dl
CLINICAL DIAGNOSTIC WORK-UP

• Radiographs & ultrasound (9/20/12)
  ▪ walled off opacity in the cranial mediastinum

![X-ray Image](image_url)

Courtesy of TUSVM radiology dept.
CLINICAL DIAGNOSTIC WORK-UP

• Developed a pleuritis, which progressed to a pleuropneumonia
  ▪ non-responsive to Gentamycin, Naxcel, Metronidazole and Banamine
• **Thoracocentesis cytology (9/21/12)**
  - Collected 1100ml of foul smelling, brown colored serous pleural effusion
  - No isolated bacteria
  - ~50% neutrophils, ~40% lymphocytes and ~10% macrophages
    - suggestive of lymphoma

• **Owner elected euthanasia (9/27/12)**
NECROPSY EXAMINATION
MICROSCOPIC FINDINGS
MORPHOLOGIC DIAGNOSES

Lungs: Severe multifocal fibrinous and necro-suppurative broncho-interstitial pneumonia with multifocally extensive abscession and diffuse pulmonary edema
MICROBIOLOGY

- Lung swab
  - *Mannheimia haemolytica*
  - *Bacillus halodurans*

- Lung
  - *Enterobacter aerogenes*
  - *Escherichia coli*
WHY WASN’T I EXPECTING THAT??

- *Mannheimia haemolytica* is primarily a pathogen of cattle
  - A small percentage of equine have had *M. haemolytica* isolated from the lower airways
  - Rare reports of *M. haemolytica*-associated pneumonia in horses
    - Most likely pathogenic opportunistic invader in this case
    - It’s highly possible that the horse was in close contact with cattle
• *Bacillus halodurans* is widely found in soil and water
  • To date, there have been no reports of this bacteria has not been associated with disease in animals
  • Opportunistic invader
• Other bacteria
  • *Enterobacter aerogenes*
  • *Escherichia coli*
• Considered to be contaminants
DISCUSSION

• Cause of death: humane euthanasia
• Ill-thrift due to severe, chronic pneumonia
• Primary Differentials: Equine Influenza Virus, Equine Herpes Virus and Equine Adenovirus
  • Due to severe multifocal loss of alveolar capillary wall architecture and abundance of necrotic material throughout the interstitium
  • However, viral isolation was not performed
• However, the bacteria cultured from within a pulmonary abscess were *Mannheimia haemolytica* and *Bacillus halodurans*
• The absence of unidentifiable bacteria histologically was most likely due the prolonged administration of antibiotics
• Although a primary pathogen of cattle, *M. haemolytica* is considered to be the most pathogenic secondary invader in this case due to compromised state of host
REFERENCES


ACKNOWLEDGEMENTS

• TUSVM Pathobiology Department
  • Special thanks: Dr. Gilbreath, DVM, PhD

• TUSVM Histology Department