Case History

• 3-day-old, Male, Thoroughbred foal

• 5 hours: Lethargy, RF lameness, leukopenia, pyrexia (103.3F)

• Parturition unremarkable

• Reported IgG at 20 hours: 800 (mg/dl)
Case History

- Serum biochemistry, VBG, IgG, blood culture

- Progression to obtundation, respiratory arrest, and euthanasia elected within 3 hours of presentation → postmortem examination
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Reference Range</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>Glucose</td>
<td>5</td>
<td>73 - 113</td>
<td>mg/dl</td>
</tr>
<tr>
<td>BUN</td>
<td>20</td>
<td>7 - 25</td>
<td>mg/dl</td>
</tr>
<tr>
<td>Cr</td>
<td>2.3</td>
<td>1 - 1.7</td>
<td>mg/dl</td>
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<tr>
<td>P</td>
<td>6.5</td>
<td>2.1 - 4.1</td>
<td>mg/dl</td>
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<tr>
<td>Ca</td>
<td>10.9</td>
<td>11.3 - 13.4</td>
<td>mg/dl</td>
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<td>Total Prot</td>
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<td>5.5 - 7.5</td>
<td>g/dl</td>
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<tr>
<td>Alb</td>
<td>2.1</td>
<td>2.8 - 3.5</td>
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<tr>
<td>Glob</td>
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<td>2.4 - 4.4</td>
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<tr>
<td>pH</td>
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<td>7.16 - 7.45</td>
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<td>P02</td>
<td>21</td>
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<td>mmHg</td>
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<tr>
<td>% Sat</td>
<td>10</td>
<td>43 - 100</td>
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<tr>
<td>Lactate</td>
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<td>&lt; 1</td>
<td>mmol/L</td>
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<tr>
<td>IgG</td>
<td>&lt; 400</td>
<td>&gt; 800</td>
<td>mg/dl</td>
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</table>
Diagnosis

• Kidney:
  – Marked, embolic, suppurative nephritis with intralesional bacterial colonies

• Blood culture: *Actinobacillus equuli*
Actinobacillus equuli

- Alimentary, Gram-negative, coccobacillus
- Postparturient infection most common
- A. equuli subsp. equuli and haemolytica
  - The latter considered more pathogenic
  - CAMP positive
  - And produces Aqx exotoxin
    - RTX toxin
RTX Toxins

- Other pathogens: *M. hemolytica*, *A. suis*, *A. pleuropneumoniae*...
- Bind to B2 integrins -> necrosis/apoptosis
- RTX structure (Frey 2011):
Additional Findings

Embolic suppurative pneumonia
Additional Findings

Fibrinosuppurative arthritis


Acknowledgements

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The NCSU CVM Histology Lab

Questions?

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