Case #1512-5366

Mackenzie Long, Dr. Melinda Camus

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Signalment and History

- “Montana”
- 11-week-old male Labrador Retriever
- Minimal historical information was provided with exception of “slight icterus” noted on physical exam by the referring DVM

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**CBC: Erythron**

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Patient values</th>
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</tr>
</thead>
<tbody>
<tr>
<td>HCT (%)</td>
<td>21.0 ↓</td>
<td>36.6-59.6</td>
</tr>
<tr>
<td>RBC (x10⁶/µL)</td>
<td>3.57 ↓</td>
<td>4.98-7.92</td>
</tr>
<tr>
<td>HGB (g/dl)</td>
<td>6.9 ↓</td>
<td>12.6-19.9</td>
</tr>
<tr>
<td>MCV (fl)</td>
<td>58.8 ↓</td>
<td>69-80</td>
</tr>
<tr>
<td>MCHC (g/dl)</td>
<td>32.8</td>
<td>32.3-36.6</td>
</tr>
<tr>
<td>Abs Reticulocytes (x10³/µL)</td>
<td>7</td>
<td>0-80</td>
</tr>
</tbody>
</table>

Microcytic normochromic potentially pre-regenerative anemia with moderate anisocytosis and erythrocyte inclusions

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Differentials for RBC Inclusions?

- Heinz Bodies?
- Canine distemper virus
- Howell Jolly Bodies
- *Mycoplasma haemocanis*
- Canine babesiosis
  - Small Form
  - Large Form
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  - Large Form ➔ confirmed via PCR as *Babesia canis*

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Canine Babesiosis

- All species of the *Babesia* genus are tickborne
- *B. canis* and *B. gibsoni* are the two species found worldwide
- Multiple strains of *B. canis* exist: *B. canis vogeli* most common in North America
- Found in Gulf coast, southern, central and southwestern states of U.S.
- Prevalence suggests breed and environment susceptibility
  - *B. canis*: Greyhounds in Florida
  - *B. gibsoni*: American Staffordshire and Pitbull Terriers
Canine Babesiosis Pathogenesis

Tick bite transmits sporozoites to canine host

Babesia gametes become sporozoites within tick

Sporozoites infect RBCs and replicate to become merozoites

Hemolysis due to parasite induced injury and immune system attack

ANEMIA

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CBC: Leukon

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<tr>
<td>WBC (x10³/µl)</td>
<td>3.5 ↓</td>
<td>5.5-13.9</td>
</tr>
<tr>
<td>Segs (x10³/µl)</td>
<td>1.47 ↓</td>
<td>2.9-12</td>
</tr>
<tr>
<td>Bands (x10³/µl)</td>
<td>0.525 ↑</td>
<td>0.45</td>
</tr>
<tr>
<td>Metamyelocytes (x10³/µl)</td>
<td>0.035</td>
<td>0-0</td>
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</table>

Leukopenia with a left shift and toxic change consistent with inflammation

Signs of toxic change?
• Marked basophilic cytoplasm ✓
• Moderate toxic vacuolation ✓
• Many Dohle bodies ✓
## CBC: Thrombon

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<tr>
<td>Platelets (/µL)</td>
<td>46,000 ↓</td>
<td>235,000-694,000</td>
</tr>
<tr>
<td>MPV (fl)</td>
<td>22.5 ↑</td>
<td>6.1-10.1</td>
</tr>
</tbody>
</table>

**Thrombocytopenia with shift platelets**
ACKNOWLEDGEMENTS

Dr. Melinda Camus

Dr. Buffy Howerth

College of Veterinary Medicine
Pathology Department

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