Signalment & Clinical History

• 11 year old, male castrated, domestic shorthaired cat
• Previously, healthy, indoor/outdoor cat was found acutely recumbent.
• At presentation:
  • Laterally recumbent, minimally responsive
  • Dyspneic and hypotensive (systolic 50 mmHg)
  • Numerous external ticks
• Thoracic and abdominal radiographs: within normal limits
Clinical Pathology

• **FeLV/FIV**: Neg

• **Complete blood count:**
  – Severe, normocytic, normochromic anemia (Hct 10.7%)
  – Leukopenia (WBC 1.09 K/uL, affecting monocytes, lymphocytes, neutrophils)
  – Thrombocytosis (707 K/uL)

• **Chemistry**: Hypoalbuminemia (1.9 g/dL), azotemia (BUN 81 mg/dL), hyperbilirubinemic (3.6 mg/dL)

• Died shortly after presentation and was submitted for postmortem examination.

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Morphologic Diagnosis:

Vasculature: Severe diffuse intravascular histiocytosis with intrahistiocytic protozoa

Etiologic Diagnosis: *Cytauxzoon felis*
Cytauxzoon felis

- Intraerythrocytic protozoal hemoparasite piroplasm of the family Theileridae
- The histologic appearance of Cytauxzoon felis is considered diagnostic
Life Cycle

- **Reservoir Host:** Bobcat (Lynx rufus)
- **Vector:** *Amblyomma americanum* (Acari: Ixodidae)

- The tick ingests feline red blood cells infected with *C. felis* when taking a blood meal from infected Bobcat
- The infected tick transmits sporozoites to the next feline host
- Sporozoites infect intravascular histiocytes, where they divide by schizogony and mature into merozoites
- Merozoites are released into the blood or tissue fluid when histiocytes rupture and enter erythrocytes
- Intraerythrocytic merozoites (piroplasms) may persist for years
Disease

• Disease develops due to initial schizogenous phase of replication within histiocytes
  – Causes occlusion of vessels and systemic inflammatory response
  – Acute hemolytic anemia with hyperbilirubinemia, leukopenia and thrombocytopenia and prolonged clotting times
• Intra-erythrocytic merozoites (piroplasms) can persist asymptotically for years
Cytauxzoon felis

- Typical gross findings: petechial to ecchymotic hemorrhages on surface of lungs and organs, enlarged and hemorrhagic lymph nodes, splenomegaly
Case conclusion

• This cat’s peracute presentation, presence of tick ectoparasites, and clinical pathology data is typical of infection with C. felis

• Intrahistiocytic protozoal organisms were found in virtually all vessels of every organ examined including liver, kidney, spleen, heart, gastrointestinal tract, lymph nodes, brain and bone marrow
Questions?

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References


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