Case History

- 12 year-old, MC, Domestic Shorthair Cat
- July 2009: Retropharyngeal mass discovered
- Biopsy: Well-differentiated plasmacytoma
Initial Diagnostics

- **Chemistry:**
  - Hyperproteinemia – 9.4 g/dL (6.4 – 8.2 g/dL)
  - Hyperglobulinemia – 6.3 g/dL (2.9 – 4.8 g/dL)

- **Serum protein electrophoresis:**
  - Monoclonal gammopathy

- **CT imaging:**
  - Diffuse osteopenia (age-related?)
  - Pinpoint lytic foci (age-related?)

- **Bone marrow cytology:**
  - Equivocal to mild increase in mature plasma cells
Initial Diagnosis

- Extramedullary plasmacytoma (functional)

- Diagnostic criteria for multiple myeloma
  - Myeloma cells in bone marrow
  - **AND** one of the following:
    - 1. Serum paraproteinemia (monoclonal gammopathy)
    - 2. Light chain proteinuria
    - 3. Osteolytic bone lesions
Case Progression

- **Treatment:** Palliative radiation and chemotherapy
- **Persistent hyperglobulinemia**
- **Euthanasia – 5 months post-diagnosis**
Retropharyngeal Mass

Biopsy – 7/2009

Necropsy – 11/2009

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Bone marrow
Kidney
Histologic Diagnosis

- Poorly differentiated round cell neoplasia
  - Marrow, liver, spleen, kidney, lymph nodes, lung

- Multiple myeloma:
  - Eccentric nuclei with clear perinuclear zone (inconsistent)
  - Erythrophagocytosis (rarely reported)

- Malignant histiocytosis:
  - Cleaved nuclei
  - Erythrophagocytosis
  - Pulmonary invasion
Liver IHC - $\lambda$ light chain

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Myeloma-Related Disease in Cats

- Multiple myeloma is rare
  - Less than 2% of all feline hematopoietic malignancies

- Myeloma-related disease
  - Extramedullary presentation very common (67%)
  - Concurrent bone marrow and abdominal organ involvement:
    - Multiple myeloma (primary bone marrow involvement) with secondary extramedullary metastases
    - OR
    - EMP (primary soft tissue involvement) with secondary bone marrow infiltration
Case Progression

- **Original diagnosis:**
  - Well-differentiated extramedullary plasmacytoma
    - Functional with monoclonal gammopathy
    - No bone marrow involvement

- **5 months later**
  - Multiple myeloma criteria fulfilled

- **Suggests extramedullary plasmacytoma with secondary bone marrow infiltration**
References


Questions?

Thank you:
- Dr. John Cullen
- NCSU-CVM Histology Lab