Case C6525-13

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Signalment/History

- 10 YO Male Neutered Ragdoll Cat
- 2 Week History of Vomition
  - Worsening
BAR

Abdominal palpation reveals a mass in the caudal abdomen
  – Approximately 4-5cm in diameter

Ultrasound reveals mass is at the tail of the spleen. The spleen otherwise appears normal.
Diagnostics

• CBC:
  – Mild leukopenia (no specifics were given)

• Biochemistry Profile:
  – Within normal limits

• Cytology
  • Fine Needle Aspirate of the spleen was evaluated
Cytologic findings

• Numerous mildly pleomorphic mast cells with a centrally placed nucleus and a moderate amount of cytoplasm that contains large numbers of metachromatic granules arranged in a background of blood with extracellular granules seen.
• A splenectomy was performed, as well as lymph node, pancreatic, and duodenal biopsy.
Spleen 40x

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Pancreas 10x
Splenomegaly with disseminated mast cell infiltrates
Small Intestine with transmural thickening due to mast cell neoplasia
Mast cell tumors in cats

- Cutaneous mast cell tumors—most common
  - Mastocytic
    - Compact (well differentiated)
    - Diffuse (anaplastic)
  - Histiocytic
- Visceral MCT (not associated with cutaneous)
  - Primary splenic (lymphoreticular mast cell tumor)
  - Intestinal
• Two forms seen grossly
  – Diffuse smooth form
  – Nodular form
    • Less common
• May result in a secondary hematologic mastocytosis
  – Best evaluated on a buffy coat smear
• Metastasis is common.
Mast cells

- Originate from a CD34 precursor cell
- Two types of mast cells
  - Mucosal
    - Respiratory and intestinal mucosa
      - T helper lymphocyte dependent
  - Connective tissue
    - Less dependent upon T helper lymphocytes
Degranulation of mast cells

- Mast cells express receptors for IgE on their surfaces
  - Degranulation occurs when
    - Receptors are cross linked by allergens, or parasites
    - Substance P released from sensory nerve fibers and macrophages
  - Preformed products released during degranulation include
    - TNFα
    - Histamine
    - Neutral proteases
    - Proteoglycans
    - Serotonin (in rodents but not humans)
    - Tryptase
    - Chymase
    - Stem cell factor
Mast cell neoplasia sequelae

• Mast cell degranulation
  – Vasoactive components within granules can cause
    • Gastrointestinal ulceration
    • Uncontrollable hemorrhage
    • Altered smooth muscle tone
    • Hypotensive shock

• Splenic MCT
  – Peripheral mastocytosis (approximately 30% of cases)

• Intestinal MCT
  – Transmural intestinal infiltration
  – Peripheral eosinophilia (reported in dogs)
References

- Withrow and MacEwen’s Small Animal Clinical Oncology 4th Ed. 2007
- Zachary and McGavin’s Pathologic Basis of Veterinary Disease 5th Ed. 2012.