The Diagnosis and Prognosis of Canine and Feline Mast Cell Tumors

V. E. Valli

Diagnostic Criteria
- Most tumors are well enough granulated to establish the tumor type
- C-Kit and Giemsa stains are used when Mast cell is suspected but not defined
- Cell size and atypia are used in the Dog for a I,II,III (Patnaik) grade with troubling variation in progression in grade II
- In cats the tumor may be visceral or cutaneous

Traditional Criteria
- The Patnaik system has few cases of grade I MCT with most in grade II some of which are aggressive with few grade III most of which are aggressive
- MCT is not as prevalent in the cat and the cells are granular but stain poorly
- New data suggests that there is poor correlation between grade and survival but that mitotic rate is fully predictive
Mitotic Index is Predictive for Survival for Canine Cutaneous Mast Cell Tumors


Veterinary Pathology vol 44 p335-341 2007.

Description of Study

148 dogs with MCT examined with full survival data
Tumors classified according to the Patnaik criteria with mitotic rates determined on 10 fields at 400X
Each grade was divided into those with <5MI/400X or >5MI/400X
Survival correlated with MI but not with grade P<0.001

Cutaneous Mast Cell Tumor Cat

Case: 1 A 15 year old MN Domestic Long Hair cat was presented with a cutaneous mass located on the right triceps with excisional biopsy carried out
Cell type: Low grade (II) Mast cell
Mitotic rate: 0.0/10 fields at 400X
Case 2: A 16 year old MN Domestic Long Hair cat was presented with a cutaneous mass on the left shoulder that had been present for months to years that had recently become ulcerated and was removed by excisional biopsy.

- Cell type: High grade (II) Mast cell
- Mitotic rate: 15/10 fields at 400X
Case 3: A 14 year old FS Domestic Long Hair cat was presented with a mass on the side of the face present for years that waxed and waned and recently became swollen and oozing brownish material with cystic salivary duct suspected. A large solid mass was removed.

- Cell type: High grade (II) Mast cell
- Mitotic rate: 0.0/10 fields at 400X
Case 4: A 9 year old MN Domestic Short Hair cat was presented for anorexia with circulating Mast cells identified. The spleen was enlarged (30cm) and was removed. The liver grossly had pale areas and histologically had Mast cell infiltration.

- Cell type: well differentiated (grade II) Mast Cell with moderate anisokaryosis
- Mitotic rate: 0.0/400X
Case 5: 8 year old FS Pit Bull that presented with a mass on the ventral chin area present for two weeks

- Cell type: low grade (I) Mast cell well differentiated
- Mitotic rate: 0.0/400X
Case 6: A 5 year old Female Flat Coated Retriever was presented in late pregnancy with a mass on the left thigh. A FNA was interpreted as Mast Cell Tumor. Following whelping the mass shrunk and was removed by excisional biopsy.
- Cell type: Low grade (II) Mast cell
- Mitotic rate: 5.0/10 fields at 400X
Case 7: An 8 year old MN Boxer dog was presented after marginal removal of a mass on the hip diagnosed as Mast cell tumor. On re-examination there was swelling at the surgical site and with an enlarged underlying popliteal node.

- Cell type: Large likely high grade (III) with necrosis
- Mitotic rate: Node 35/400X
Conclusions Mast Cell Tumor Prognosis

- In MCT in the dog the Mitotic Index trumps all other criteria for prognostic correlations
- The overall mean MI does correlate with grade
- In MCT in the dog some tumors of very atypical nuclear type graded as III by the Patnaik system had very few mitoses in 10 fields at 400X
There is no widely accepted grading system for MCT in the cat.
In the cat the MI is the strongest cytologic variable predictive of survival.
There are three forms of MCT in the cat with cutaneous generally benign, splenic systemic and enteric characterized by the shortest survival.
Young Siamese cats are predisposed to a high grade of “histiocytic” MCT.