Retrospective evaluation of canine conjunctival mast cell tumors

Matthew M. Fife DVM
Tiffany Blocker DVM DACVO
Richard Dubielzig DVM DACVP
Tina Fife DVM
Karen Dunn BVSc
Conjunctival MCT

• MCT represents the most common cutaneous neoplasm of the dog (16-21%)

• Behavior of cutaneous tumors is well studied

• Conjunctival tumors poorly described, behavior not documented
Conjunctival MCT

• 1988 Johnson et al. - Reported two conjunctival mast cell tumors originating from the dorsal bulbar conj. Local resection was curative at 4 years and 6 months

• 2007 Barsotti et al. – Single case report of palpebral MCT in a Labrador Retriever. Local excision curative at 29 months
Conjunctival MCT

- Behavior and prognosis of MCT best predicted by histologic grade

- Additionally, size of tumor, location of tumor, clinical stage and growth rate of tumor as well as AgNOR’s, and Ki67 can be prognostic indicators

- Therapy is directed primarily by the histologic grade of the tumor
• Tumor location
  - Historically tumors originating at mucosal, inguinal and subungual locations were thought to carry a poorer prognosis in spite of a lack of support in the literature. Two recent case series, however, found a comparable survival time for dogs with inguinal and perineal mast cells tumors to those at other cutaneous locations.
Conjunctival MCT

- Grade I (Well Diff) – Confined to dermis, cells round and monomorphic with ample cytoplasm and distinct cytoplasmic granules.
- Grade II (Intermediately Diff) – Neoplastic cells infiltrate or replace lower dermal and subcutaneous tissue sometimes extending to skeletal muscle. Moderately pleomorphic cells, with sparse cytoplasmic granules. Nuclei round to indented with scattered chromatin and single nucleoli, mitotic cells 0-2/hpf.
- Grade III (Poorly Diff) – Neoplastic cells infiltrate deeply into the subcutaneous and deep tissues. Pleomorphic round, ovoid or spindle shaped cells arranged in packed sheets. Cytoplasmic granules that were not obvious. One or more prominent nucleoli, binucleate cells common, 3-6 mitotic cells/hpf.
Conjunctival MCT

• Treatment – Low and Intermediate Grade
  – Surgical excision with 2-3cm lateral margins plus 1 fascial plane deep
    • If complete excision is not possible primary treatment with external beam radiation-therapy or a combination of surgical excision and radiation therapy is recommended

• Treatment – High Grade
  – Surgical excision combined with chemotherapy +/- regional node radiation-therapy
  – Incomplete surgical margins warrant radiation-therapy of primary site
Conjunctival MCT

- Evaluation of the importance of clean surgical margins have demonstrated a similar long term outcome for completely and incompletely excised tumors of low to intermediate grade
  - Michels et. al. Prognosis following surgical excision of canine cutaneous mast cell tumors with histopathologically tumor-free versus nontumor-free margins: a retrospective study of 31 cases. JAAHAv38n5p458
### Conjunctival MCT

<table>
<thead>
<tr>
<th>Grade</th>
<th>1 year survival (%)</th>
<th>2 year survival (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (#46)</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Intermed (#121)</td>
<td>92</td>
<td>89</td>
</tr>
<tr>
<td>High (#28)</td>
<td>46</td>
<td>36</td>
</tr>
</tbody>
</table>

Murphy S. et al. Relationship between the histological grade of cutaneous mast cell tumours in dogs, their survival and the efficacy of surgical resection. Vet Rec v154p 743-746 '04
Conjunctival MCT

- 33 dogs with 35 MCT identified
  - Labrador (7) Labrador cross (5) most common
  - 20 FS, 9CM, 2F, 1M
  - 27 cases had duration reported – Range 1 week-2 years (mean 4.6 months)

- Site
  - bulbar (12), dorsal palpebral (9), third eyelid (8), ventral palpebral (3), medial canthal (1), unknown (1)

- Grade
  - 11 low grade, 20 intermediate grade, 3 high grade
Conjunctival MCT

• Retrospective evaluation of canine conjunctival MCT
  – COPLOW - 24 cases
  – Eye Path Lab - 7 cases
  – Eye Care for Animals - 3 cases (Histopathology by ANTECH)

• Questionnaires sent to submitting veterinarian for follow up information. Referring veterinarian and/or owners contacted for additional information where needed
Conjunctival MCT

• Surgery performed
  – Local excision in 25 cases
  – Excision with H-plasty in 2 cases
  – TEL excision in 3 cases
  – Enucleation in 2 cases (1 following recurrence)

• Margins
  – Dirty margins in 25 cases, narrow in 5 cases and clean in 1 case (enucleated)

• Adjunctive Therapy
  – External beam radiation performed in one case
  – Vincristine/Cyclophosphamide administered in one case
  – Cryotherapy performed of surgical site at time of surgery in 5 cases
Conjunctival MCT

- Follow up information was received for 25 animals
  - 15 currently disease free (21.4 months)
  - 4 disease free but lost to follow up (13 months)
  - 4 died of unrelated causes (20.25 months)
  - 2 local recurrences
Palpebral
Low Grade
Intermediate Grade
High Grade
Conjunctival MCT
Conjunctival MCT

• Conclusion
  – MCT of the conjunctiva are typically of low to intermediate grade and appear to follow a benign clinical course
  – Local surgical excision seems to yield good clinical results even with incomplete surgical margins
Acknowledgments