Ocular Neoplasia: Canine
July 18th 2009
Richard R Dubielzig
2135/5722 Canine Melanocytic Tumors

- Outside the Globe: 264
  - Conjunctival: 159
  - Eye Lid: 72
  - Skin: 33
- Affecting the Globe: 1871
  - Anterior Uveal Melanocytoma: 1245
  - Anterior Uveal Malignant Melanoma: 312
  - Limbal Melanocytoma: 213
  - Choroidal: 86 Melanocytoma and 11 Malignant Melanoma
  - Metastatic Melanoma: 15

Anterior Uveal Melanocytoma
1245 Cases

Many cases arise from within ocular melanosis or heavily pigmented globes.

Airedales and Retrievers are over-represented.
Canine Anterior Uveal Melanocytoma

Anterior Uveal Melanocytoma
Melanocytoma
Melanocytoma
Electron Microscopy
Limbal (Epibulbar) Melanocytoma
213 Cases

German Shepherds are over-represented
Limbal (Epibulbar) Melanocytoma
Typical Limbal Melanocytoma

Atypical

Typical Limbal Melanocytoma
Limbal (Epibulbar) Melanocytoma
Anterior Uveal Malignant Melanoma
312 Cases

Retriever, but not Airedales, are over-represented.

Many cases arise from Melanocytoma or Melanosis.
Malignant Uveal Melanoma
Malignant Uveal Melanoma
Malignant Uveal Melanoma
Malignant Uveal Melanoma
Malignant Uveal Melanoma
Malignant Uveal Melanoma

Choroidal Melanocytic Tumors
86 Benign & 11 Malignant

Retriever, but not Airedales, are over-represented.

Dubielsig RR, Aguirre GD, Gross SL, Diters RW.
22: 582-585.
Choroidal Melanocytic Tumors
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Choroidal Melanocytic Tumors
Choroidal Melanocytic Tumors
Conjunctival Melanoma

• 159 cases, breeds with pigmented conjunctiva are over-represented
• Most are malignant by morphologic criteria
• Most recur elsewhere on the conjunctiva after removal
• They seldom metastasize
• Those on the palpebral conjunctiva are more likely to metastasize

Conjunctival Melanoma
Conjunctival Melanoma
Conjunctival Melanoma

Melan-A+
Canine Iridociliary Epithelial Tumors

717 Cases
116 are Adenocarcinoma
15 Cases of Malignant Adenocarcinoma with features of Pleomorphic Adenocarcinoma

Canine Iridociliary Epithelial Tumors
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Canine Iridociliary Epithelial Tumors

Alcian blue

Hyaluronic acid
Asteroid Hyalosis

Pre-iridal fibrovascular membrane

Canine Iridociliary Epithelial Tumors
Immunohistochemistry of Canine Iridociliary Epithelial Tumors

- Vimentin+
- Cytokeratin- (but malignant tumors tend to become +)
- S100+
Cytokeratin+ (adenocarcinoma)

Vimentin+

Canine Iridociliary Epithelial Tumors
Malignant Variant of Iridociliary Epithelial Tumor (Pleomorphic Adenocarcinoma)

Malignant Variant of Iridociliary Epithelial Tumor (Pleomorphic Adenocarcinoma)

- 2 died with documented metastasis
- 5 others died with suspected tumor
- 8 others died within 2 years of unknown causes

Alcian blue PAS
Malignant Variant of Iridociliary Epithelial Tumor (Pleomorphic Adenocarcinoma)

Cytokeratin+

Vimentin+

Lung
Tumors of Primitive Neurectoderm

• Medulloepithelioma
  – Canine...19 cases
  – Equine...3 cases

• Retinoblastoma
  – Human
  – Canine
Medulloepithelioma
Canine
Medulloepithelioma Canine
Medulloepithelioma

Canine

Evisceration sample

Scleral shell
Medulloepithelioma
Medulloepithelioma Rosettes

Homer-Wright

Flexner-Wintersteiner

Medulloepithelioma Rosettes
Canine Retinoblastoma??

Human  Canine  Canine
Canine Optic Nerve Glioma

Canine Optic Nerve Glioma
Canine Optic Nerve Glioma
Spindle Cell Tumor of Blue-Eyed Dogs

Blue Brown

Spindle Cell Tumor of Blue-Eyed Dogs
Spindle Cell Tumor of Blue-Eyed Dogs…11 Cases

- Median age=8.3 years (Range=4.5-12 years)
- Gender equal
- Laterality equal
- Siberian Huskies, Australian Shepherd, Border Collie and other breeds with blue or partly-blue eye
Spindle Cell Tumor of Blue-Eyed Dogs
Spindle Cell Tumor of Blue-Eyed Dogs
Spindle Cell Tumor of Blue-Eyed Dogs
Spindle Cell Tumor of Blue-Eyed Dogs
Trichrome Stain
Spindle Cell Tumor of Blue-Eyed Dogs
GFAP

Spindle Cell Tumor of Blue-Eyed Dogs
Spindle Cell Tumor of Blue-Eyed Dogs
Electron Microscopy
Basement Membrane
Distribution of GFAP+ Cells in the Uvea of Blue-Eyed Dogs
Distribution of GFAP+ Cells in the Uvea of Pigmented Dog Eyes
Canine Corneal Squamous Cell Carcinoma

- 20 cases in COPLOW
- All have Chronic Superficial Keratitis
- Most treated with Cyclosporin or Tacrolimus

Canine Corneal Squamous Cell Carcinoma
Canine Orbital Meningioma
60/4100 Cases

Canine Orbital Meningioma
Canine Orbital Meningioma
Canine Orbital Meningioma
Canine Orbital Meningioma
Arachnoid Cap Cells (Normal)

Dura mater

Optic nerve
Canine Orbital Meningioma
Vimentin+
Canine Orbital Lobular Adenoma

• 32 Cases
• Swollen lids, protruding nictitans, conjunctival mass, exophthalmia
• Recurrence in 10 of 13...395 days average
• Multiple recurrences are common

Canine Orbital Lobular Adenoma
Canine Orbital Lobular Adenoma
Canine Orbital Lobular Adenoma
Canine Orbital Lobular Adenoma
Clinical Presentation

- Swollen eye lids.......................5 cases
- Protrusion of the nictitans..........3 cases
- Retrobulbar masses..................2 cases
- Exophthalmia..........................5 cases
- Resistance to retropulsion.........2 cases
- Strabismus............................1 case
10/13 cases with follow-up had at least one recurrence

- Case 1 ................. 240 days
- Case 3 ................. 635d & 1300d (bilateral)
- Case 5 ................. 90d
- Case 6 ................. 365d & 515d & 995d (bilateral)
- Case 7 ................. 600d
- Case 8 ................. Multiple (unknown periods)
- Case 10 ............... 660d
- Case 13 ............... 370d
- Case 14 ............... 315d
- Case 15 ............... 210d & 565d
- Cases 2, 4, & 9 euthanized prior to recurrence
- Cases 11 & 12 lost to follow-up
## Canine Ocular Metastatic Tumors

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<th>Neoplasm</th>
<th>Anterior</th>
<th>Posterior</th>
<th>Both</th>
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Typical Appearance of Canine Metastatic Tumor
Histiocytic Sarcoma: Retrievers & Rottweilers

Histiocytic Sarcoma

CD18+