Neoplasia of the Canine Eyelids, Conjunctiva and Cornea

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Eyelids

Labelle AL et al. VO
2013 (review)
General Considerations

• Any cutaneous neoplasm can affect the eyelid skin
• Eyelid predisposition is really prediposition to the head/neck region
Trichoblastoma

- Solitary, firm, alopecic, dome-shaped or polypoid
- “Basal cell tumor”
- Epithelial neoplasm
- “basal” cells: small, scant cytoplasm
- Ribbons, nests, cords, trabeculae (combination)
- Histologic subtypes
- Some cells may be spindle
Trichoblastoma
Trichoblastoma
Sebaceous Tumors

- Hyperplasia/adenoma, epithelioma
- Solitary or multiple, dome-shaped or papillated
- Epithelial neoplasm
- Nests of well-differentiated sebaceous glands with ducts
- Basal cell predominate in epitheliomas, may be pigmented
Sebaceous Tumors
Mast Cell Tumor

- Solitary or multiple, alopecic, erythematous, edematous
- Sheets within collagenous stroma
- Round cells with cytoplasmic granules
- Giemsa and Toluidine blue stains for granules
- Admixed with eosinophils
- Grading (Patnaik, 2-tier) only for skin

- Patnaik Vet Path 1984; Romansik Vet path 2005; Kiupel Vet Path 2011; Thompson Vet Path 2011
Mast Cell Tumor
Lymphoma

- Variable gross appearance
- Most are epitheliotropic
- Sheets of lymphocytes that variably extend in the surface and follicular epithelium
- Round cells with scant cytoplasm
- Almost all epitheliotropic lymphomas are of T cell origin (CD3 positive, CD79a/CD20 negative)
- Can be typed by cell size
- Mitotic index corresponds to grade
Lymphoma
Canine Cutaneous Histiocytoma

• Button lesion, round, red +/- ulcerated
• Round cell neoplasm
• Histiocytic-Langerhans cells
• Sheets and subepidermal cords, +/- epidermal invasion
• Cells have round to reniform nuclei
• Mitotic index highly variable
• Lymphocytic infiltrate with regression
Canine Cutaneous Histiocytoma

- Mostly, but not exclusively in young dogs
- PL database (150 cases): 48% are 3yo or younger, 65% are 4yo or younger
- Less spontaneously regression older dogs
- Ddx histiocytoid lymphoma in older dogs
Canine Cutaneous Histiocytoma
Canine Cutaneous Histiocytoma
Granular Cell Tumor

- Medial canthus
- Solitary, firm, +/- ulcerated
- Sheets
- Round cells with abundant granular cytoplasm
- Minimal pleomorphism, low mitotic index
- Strong staining with PAS
- Histologically similar to sublingual GCT
- Lu JE et al. VO 2012
Granular Cell Tumor
Granular Cell Tumor
Granular Cell Tumor
Melanocytic Neoplasia

- Solitary, dome-shaped, pink to brown to black
- Most are benign melanocytomas
- Sheets, packets, bundles, whorls
- Spindle or polygonal cells
- Usually heavily pigmented
- Junctional activity
- Malignant: mitotic index of 3 or more, nuclear atypia, deep extension and ki-67 of >15%
- Smedley R et al. Vet Path 2011
Melanocytic Neoplasia
Melanocytic Neoplasia
Melanocytic Neoplasia
Melanocytic Neoplasia
Eyelid Margin

Labelle AL et al. VO
2013 (review)
Meibomian Adenoma/Epithelioma

- Tan, pink, gray or black
- Adenoma, epithelioma
- Well-circumscribed, variably exophytic
- Lobules of sebaceous glands with ducts
- Basal cell predominate in epitheliommas
- May be pigmented
Meibomian Adenoma/Epithelioma
Meibomian Adenoma/Epithelioma
Meibomian Adenoma/Epithelioma
Conjunctiva

Labelle AL et al. VO
2013 (review)
Squamous Papilloma

• Discrete, papillary lesions
• Skin, eyelid margin or conjunctiva
• No features of atypia
• No viral cytopathic effects
• Ddx reactive papillary hyperplasia ("reactive papilloma")

• Beckwith-Cohen B et al. Vet Path 2015
Squamous Papilloma
Squamous Papilloma
Squamous Papilloma
Viral Papilloma

- Exophytic, papillary
- Papillary fronds of hyperplastic, variably pigmented epithelium with a prominent granular layer and hyperkeratosis
- Koilocytes (abundant pale cytoplasm, large or pyknotic nuclei)
- Intranuclear inclusions (not required for the diagnosis)
Viral Papilloma
Viral Papilloma
Viral Papilloma
Third Eyelid Gland Adenocarcinoma

- Pink, firm
- Infiltrative
- Nests and tubules, or solid
- Squamous metaplasia
- Mitotic index highly variable
- Rare adenomas
- More aggressive and more mets in cats than dogs

- Wilcock B et al. JAVMA 1988; Dees DD et al. VO 2016
Third Eyelid Gland Adenocarcinoma

 Courtesy of Dr. Chris Reilly
Third Eyelid Gland Adenocarcinoma
Third Eyelid Gland Adenocarcinoma
Vascular Neoplasms

- Smooth, raised, pink to red
- Hemangiomas
- Well-circumscribed, attenuated endothelial cells, no mitoses
- Hemangiosarcomas
- Irregular channels, plump endothelium, +/- mitoses
- Leading edge of the third eyelid
Vascular Neoplasms

• Most (2/3) are benign
• Most conjunctival hemangiosarcomas are well differentiated
• UV exposure as a contributing factor

• Pirie CG et al. VO 2006
Vascular Neoplasms
Vascular Neoplasms
Conjunctival Mast Cell Tumor

- Smooth, firm, subconjunctival
- Well-circumscribed
- Sheets of mast cells
- Admixed with eosinophils
- Edema
- Grading only for skin
- Most respond to excision and cryotherapy

Fife M et al. VO 2011
Conjunctival Mast Cell Tumor
Melanocytic Neoplasia

• Pink to brown to black
• Most (>80%) are malignant melanoma (MI>4)
• Most on the third eyelid
• Poorly circumscribed, may be multifocal
• Sheets, packets, bundles, whorls
• Spindle or polygonal cells
• Mildly pigmented
• Local recurrence common; mets 10-20%
• Collins et al. Prog Vet Comp Ophthalmol 1993
Melanocytic Neoplasia
Cornea/Sclera

Labelle AL et al. VO
2013 (review)
Limbal Melanocytic Neoplasia

- Brown to black
- Almost all benign melanocytomas
- Broad-based nodular
- Arise from the melanocytes that demarcate the limbus at the junction of the corneal stroma and sclera
- Discohesive heavily pigmented plump polyhedral cells often admixed with fewer pigmented spindle cells
- No atypia, mitoses are rare to absent
Limbal Melanocytic Neoplasia

• Expands along the planes of least resistance: conjunctiva > corneal stroma
• Necrosis in approx. 20% of cases
• May extend intraocularly
• Rare malignant limbal melanomas
• Some benign neoplasms include areas with atypical cells
Limbal Melanocytic Neoplasia
Limbal Melanocytic Neoplasia
Limbal Melanocytic Neoplasia
Canine Corneal SCC

- Brachycephalic dogs
- Raised pink mass, axial
- Distinct margins
- Exophytic, often limited to epithelium (in situ)
- May extend in the superficial stroma
- Underlying chronic keratitis
- Role of immunosuppressive drugs?
- No metastasis reported

- Dreyfus J et al. VO 2011
Canine Corneal SCC
Canine Corneal SCC

Courtesy of Dr. Carol Naranjo
Canine Corneal Neoplasia

- Hemangiosarcoma (Haeussler DJ Jr et al. VO 2011)
- Melanocytoma (Bauer B et al. VO 2014)
- Lymphoma (Dubielzig RR. 2010)
- Nerve sheath tumor (Leis ML et al. VO 2016)
- Others with unclear origin (conjunctiva vs cornea)