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OCULAR TUMOURS

Ingrid Allgoewer
Diplomate of the European College of Veterinary Ophthalmologists, Animal Eye Pratise, Berlin, Germany

The most common location for the manifestation of intraocular tumors is the anterior uvea including primary intraocular tumors and metastases.

Iris melanoma:
The iris melanoma is the most common intraocular tumor in dogs and cats. It starts as pigmentation of the iris which may progress over months or years. Extent as well as thickness of the melanoma will cause reduced mobility of the iris which results in dyscoria. The iris melanoma may occur as amelanotic variant with white infiltration of the iris. Secondary glaucoma indicates involvement and infiltration of the iridocorneal angle with neoplastic cells in the advanced stage. The rate of metastases has not been ultimately determined in dogs and cats. As the uvea is highly vascularized, metastases are first noted in liver, spleen and lung. Histopathologic criteria used to determine malignancy include tumor size, mitotic index, infiltration of the iris stroma and the scleral venous plexus with neoplastic cells. Criteria that support the need for enucleation of an eye with iris melanoma are aggressive growth with rapid increase of the size of the tumor, free pigment dispersion in the aqueous, infiltration of the iridocorneal angle upon gonioscopy, changes and irregularities of the pupil, size, shape and mobility as well as increase of intraocular pressure.

Focal iris melanomas can be effectively treated by laser coagulation.

Primary neoplasia of the ciliary body:
Adenomas and adenocarcinomas of the ciliary body occur in dogs and cats. They present as non-pigmented pink-red colored masses in the pupil arising posterior to the iris and may cause secondary glaucoma. Their growth rate is slow and they infiltrate the sclera rarely. In the dog surgical resection at an early stage may be curative and save a visual eye.

Lymphoma:
Uveal lymphosarcoma is the most common secondary intraocular tumor in dogs and cats. Upon examination lymphoma appears as pink-white colored diffuse masses of the anterior uveal tissues usually accompanied by uveitis of variable degree and/or hyphema leading to secondary glaucoma when tumor cells invade the ciliary cleft. The posterior uvea may also be affected showing retinal hemorrhage and detachment. In dogs there may also be a circumferential corneal stromal infiltrate appearing as blue-white pericorneal discoloration of the cornea. Histopathologically pleomorphic neoplastic round cells are disseminated throughout the entire uvea, retina, vitreus and anterior chamber. Cytologic examination of an aspirate of aqueous can be diagnostic in single cases. Oral lymphoma has to be regarded as part of a generalized neoplastic disease. The ophthalmologic diagnosis should be followed by staging of the patient regarding systemic involvement. Enucleation of suspicious cases without further diagnostic evaluation and treatment (chemotherapy) of the patient does not seem to be reasonable.

Ocular metastases:
Uvea and choroid are common sites for metastases due to their high vascularity. Primary tumors may be adenocarcinomas of the mammary glands and the uterus, bronchial carcinomas, squamous cell carcinomas, hemangiosarcomas etc. Basically any distant malignant neoplasia may metastatize to the uvea. Metastases of the anterior uvea are most frequently found in the ciliary body.

Neoplasia of the posterior segment:
Primary tumors of the posterior segment are rare. Astrocytomas have been described in single cases. Chorioidal melanomas occurs in the dog. It is readily diagnosed upon ophthalmoscopy. It appears as dark brown colored subretinal raised mass. The malignancy of canine chorioidal melanomas is comparably much lower than in human patients.

Primary feline intraocular sarcoma:
The second most common primary intraocular tumor in cats is the primary ocular sarcoma. This is a highly malignant neoplasia which rapidly infiltrates the entire globe, optic nerve, orbit, regional lymph nodes and creates distant metastases. Ocular trauma seems to play an initiating role. Further risk factors include chronic uveitis and intravitreal gentamicine injections, possibly surgical trauma as well. Clinically the affected eyes show chronic uveitis, glaucoma, intraocular hemorrhage and white to pink colored masses. Early enucleation of the affected eyes with exenteration of the orbit is the only possible treatment. Even with aggressive surgical intervention at an early stage survival rate is only several months.

Limbal melanoma:
Limbal or epibulbar melanomas occur in dogs and cats as dark brown colored masses extending from the limbus into the corneal stroma and episclera. In advanced stages limbal melanomas penetrate the sclera. Limbal melanomas can be resected completely by superficial keratotomy and sclerectomy combined with cryotherapy in less advanced cases. If the tumor has invaded the sclera a perforating transplant of cornea and sclera can be used to replace the affected tissues saving a visual eye with good long term results.

Scleral and corneal neoplasia:
Tumors of sclera and cornea are rare. Corneal squamous cell carcinomas have been described in the dog.

Literature:

Legends for pictures (from left to right):
1. diffuse iris melanoma in the cat
2. limbal melanoma
3. ciliary body adenoma in the cat
4. ciliary body adenoma in the dog
5. ciliary body metastasis of a mammary carcinoma in the cat
6. primary intraocular sarcoma

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