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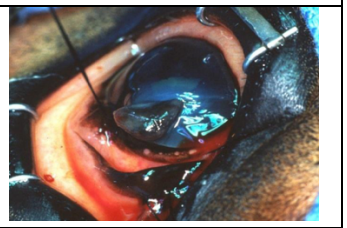
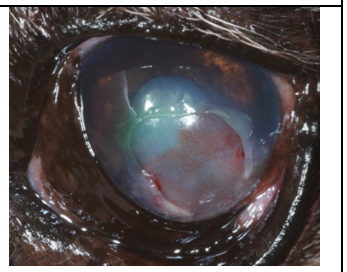
Condition	Pathogenesis	Clinical Signs	Diagnosis	Treatment	Picture
Superficial Uncomplicated Corneal Ulcer	Trauma	Blepharospasm Epiphora Serous to mucopurulent discharge Miosis (reflex uveitis) Corneal edema Corneal vascularization	Fluorescein stain	Broad spectrum topical abx NPB TID-QID Treat reflex uveitis Analgesia Anti-protease +/- Prevent self-trauma (e-collar) *Should heal in 7 days!	
Complicated Deep Corneal Ulcer	Trauma	Blepharospasm Epiphora Serous to mucopurulent discharge Miosis (reflex uveitis) Corneal edema Corneal vascularization Melting, Infected Other complicating factors	Culture and sensitivity Cytology Fluorescein stain	Anti-protease q1-6h -Serum, plasma, EDTA, NAC, Tetracyclines Antimicrobials Treat reflex uveitis > atropine Provide analgesia Consider surgical stabilization	
Iris Prolapse			Clinical signs	Can the eye see? Is the perforation sealed? Treat as a complicated ulcer No ointments Careful with atropine Surgical repair DACVO asap!	
Canine Indolent Ulcers “boxer” ulcer Spontaneous chronic corneal epithelial defect syndrome (SCCEDS)	Failure of normal cell-cell adhesion between epithelium and its basement membrane and underlying stroma (hemidesmosomes) Hyaline membrane forms over ulcer	Chronic blepharospasm Epiphora Photophobia Superficial corneal ulcer with epithelium “lip”	Fluorescein stain	Topical anesthetic Clean eye with dilute betadine and saline (tea color) Initial debridement with a cotton tip applicator Grid keratotomy or Diamond burr debridement	

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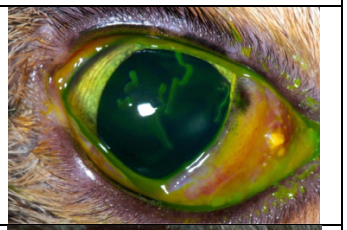
Pannus (Chronic Superficial Keratitis)	Immune-mediated Non-ulcerative keratitis German shepherds and sighthounds Young adults, no sex predilection Non-painful, progressive, exacerbated by exposure to UV light	Superficial fibrovascular invasion Pigmentation follows vessels TE thickening	Clinical Signs	Topical Steroids Topical immunomodulators Subconjunctival CsA implant Treatment is lifelong!	
Feline Herpesvirus-1	Most common cause of corneal ulcers in cats	Blepharitis Conjunctivitis Respiratory disease	Dendritic ulcers History Clinical Signs	Topical anti-vials Systemic anti-viral therapy Minimize stress	
Feline Corneal Sequestrum	Chronic irritation Trauma to cornea FHV-1 may play a role Brachycephalics predisposed	Necrotic corneal stroma	Clinical signs	Surgical resection Keratectomy +/- graft W/o referral Topical abx if fluorescein + Analgesia if needed	
Feline Eosinophilic Keratitis	Predominantly feline immune-mediated disease May be related to FHV-1 Seasonally recurrent	Raised pink/white plaques on cornea Associated with vascularization Ocular pain – variable Usually unilateral; may be bilateral	Cytology with eosinophils and mast cells	Broad spectrum abx if ulcerated Cyclosporine A Topical steroids *not if ulcer is present* SQ triamcinolone *ok if ulcer is present Megestrol acetate 0.5% ophthalmic suspension	

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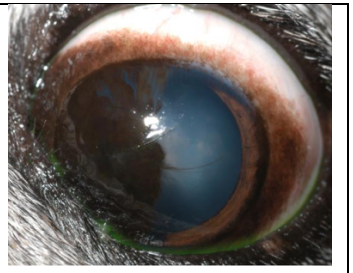
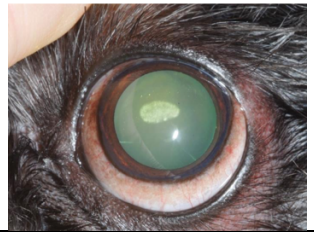
Exposure Keratitis	Non-ulcerative keratitis Brachycephalic breeds are pre-disposed along with those with facial paralysis and exophthalmia Usually due to macroblepharon, breed related exophthalmia, lagophthalmia, decreased corneal sensation, decreased tear production	Development of pigmentation, vascularization, fibrosis Corneal vessels, melanosis, fibrosis, usually medially or where the irritation is located May lead to ulcers and can also cause blindness if the fibrosis covers the whole cornea	Signalment History Clinical signs	Medical management Correct the underlying cause (KCS, eyelid conformation etc) Lubricants to protect the cornea from tear evaporation Immunomodulatory medications such as cyclosporine and tacrolimus Lifelong treatment Surgical management Medial canthoplasty	
Corneal Dystrophy	Non-ulcerative keratitis Inherited- huskies, CKCS, Beagles Bilateral, non-painful, non-progressive, does NOT interfere with vision	Crystalline, “ground glass” deposits Under corneal epithelium Bilateral, not symmetric Usually oval / circular shape	Signalment History Clinical Signs	Not indicated Self-limiting	

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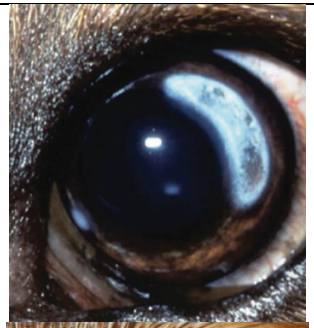
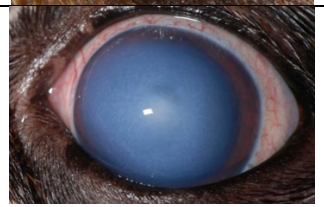
Corneal Degeneration	Non-ulcerative keratitis Uni or bilateral Usually Asymmetric Geriatric patients May be secondary to systemic alterations (hypothyroidism, hyperlipidemia) May be secondary to injury or inflammation Aberrant healing Senile degeneration	Crystalline to "chalky" deposits Usually amorphous Usually superficial within the cornea May be painful Usually associated with vascularization and inflammation May slough off and lead to ulcers	Signalment History Clinical Signs	Identify cause and treat it Topical abx if ulcerated If mineral (calcium) EDTA chelation Fair to guarded prognosis	 
Corneal Endothelial Disease	***Corneal endothelial dystrophy (CED)** Inherited endothelial abnormality Boston terrier, German Wirehaired pointers, Dachshunds Middle-aged dogs Starts laterally and progressive towards generalized ***Endothelial Degeneration** Geriatric dogs Secondary to intraocular inflammation/surgery	Generalized blue haze of the cornea Edema Progressive Stromal bullae (blister) Painful, recurrent ulceration Visual loss	Signalment Clinical signs	Topical hyperosmotics 5% saline, ointment is better than the solution -TID to QID 30 minutes apart from other medications Rho Kinase inhibitors (ROCK) under investigation Surgical options Endothelial corneal transplant Thermokeratoplasty Superficial keratectomy and conjunctival advancement hood flap (SKCAHF) helps absorb edema from cornea	

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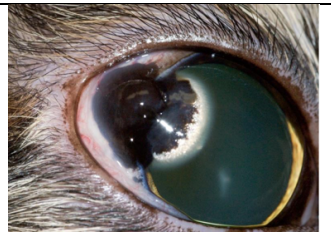
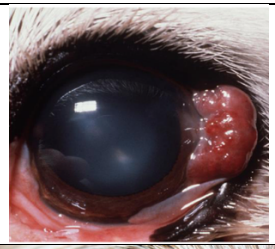
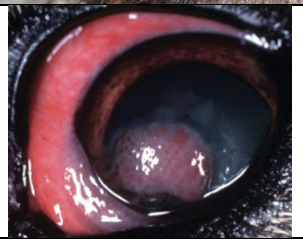
Corneal Neoplasias

Neoplasia	Signalment/Pertinent	Clinical Signs	Treatment	Picture
Limbal Melanoma **(epibulbar melanocytoma)**	German Shepherds, Goldens, and Labrador Retrievers Bi-modal age distribution (3-4y and 7-10y)	Dark mass on limbus Extends both ways Usually benign, unilateral Tends to be more aggressive in young dogs, may have slower progression in older dogs	Surgical removal + adjunctive therapy Sr^{90} radiation Cryotherapy Chemotherapy	
Canine Hemangioma/Sarcoma	Benign or malignant	Blood blister on cornea Lateral aspect of limbus Ddx from SCC	Surgical removal + adjunctive therapy Sr^{90} radiation Cryotherapy Chemotherapy	
Canine Lymphoma/Sarcoma	Usually secondary (metastatic/multicentric)	Bilateral 360º corneal vessel and infiltrates	Systemic Therapy Topical Steroids	
Canine Squamous Cell Carcinoma	Uncommon in dogs, occasionally seen in cats May be associated with chronic use of immunomodulators		Surgical removal + adjunctive therapy Sr^{90} radiation Cryotherapy Chemotherapy	

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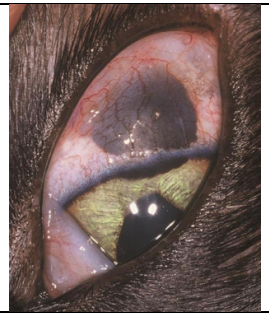
Feline Limbal melanoma/melanocytoma, SCC	Rare in cats	Usually extension of conjunctival, limbal, or intraocular tumors		

<u>Wild Thing!</u>

Corneal Dermoid	Congenital Normal Tissue, abnormal location (choristoma) Any species Lateral aspect of limbus Inherited or developmental	**<u>Dx</u>** Signalment Signs **<u>Tx</u>** Keratectomy