



Main ophthalmic diseases in horses

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 **Corneal ulceration**

 **Nonulcerative keratitis-IMMK**

 **Corneal stromal abscess**

 **Equine recurrent uveitis-ERU**

Corneal ulceration

- Very common
- Sight-threatening, corneal perforation!
- Etiology

opportunistic bacteria

Streptoc.

Staphyloc. spp.

Pseudomonas aeruginosa

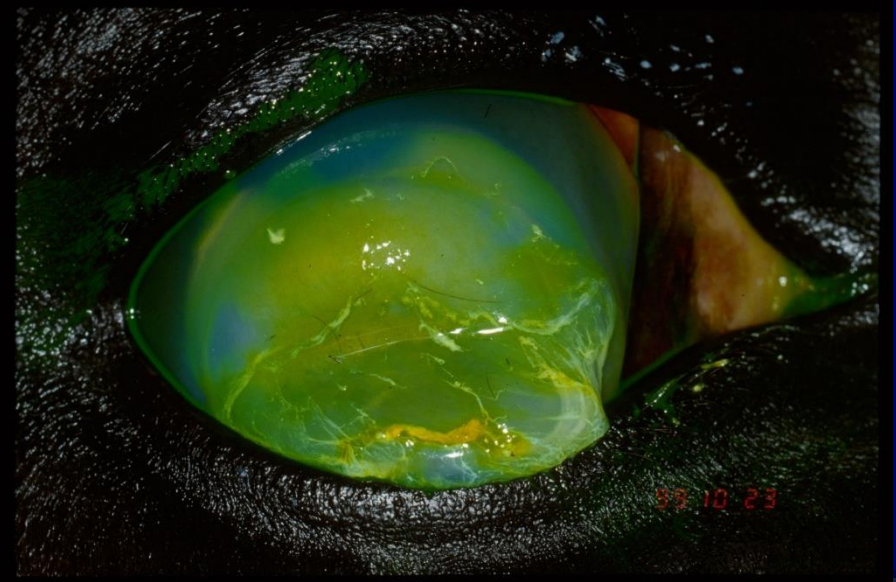
fungi

Aspergillus,

Fusarium spp.

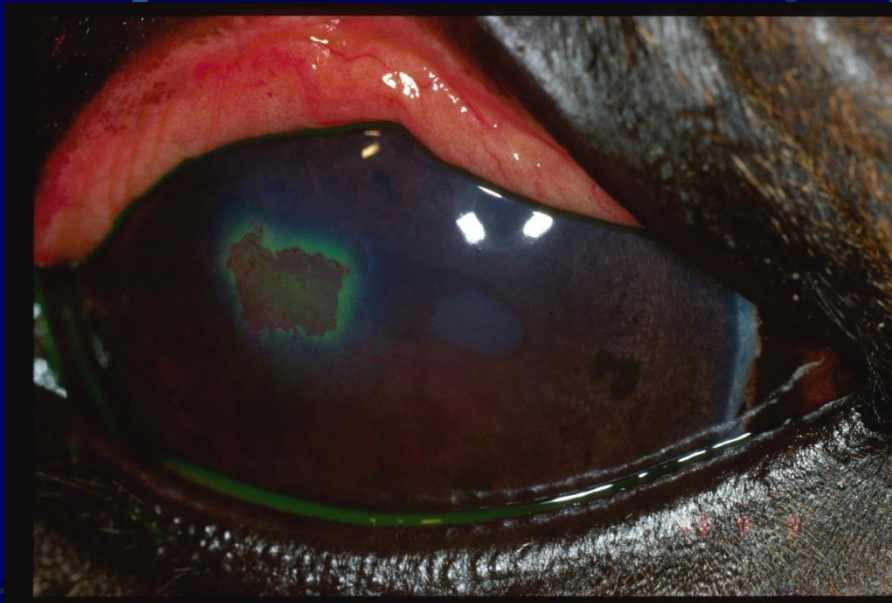
Pathogenesis

1. Corneal epithel damage
2. Bact./fungi → corneal epithel, stromal fibroblast, tear PMN → inflammatory cytokines
3. Corneal epithel cells, PTF leukocytes → proteinases, elastase, collagenase
4. Stromal destruction → melting ulcer



Clinical signs

- ◆ pain (photophobia, blepharospasm, epiphora)
- ◆ corneal edema, ulcer
- ◆ anterior uveitis (miosis, aq. flare)





Diagnosis:

- slit lamp biomicroscope
- microbiological sampling! → AB test
- cytology fungal hypha- Pas/Grocott stain

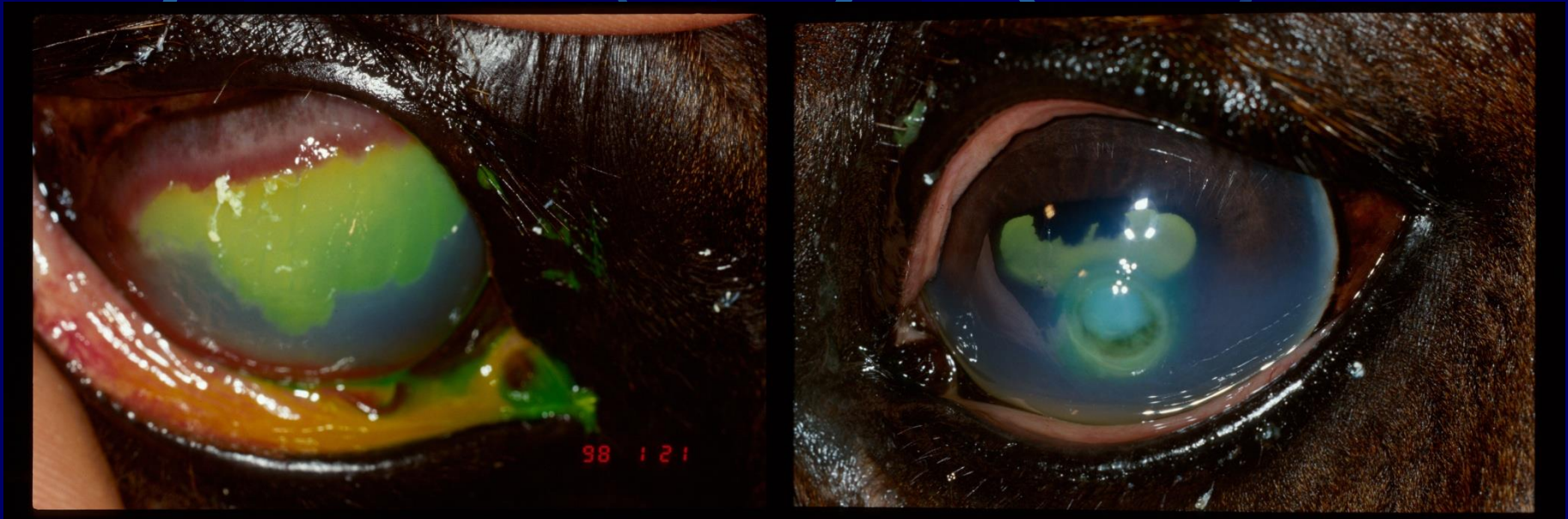
EC fungal hypha

degenerative neu. gr.



Diagnosis:

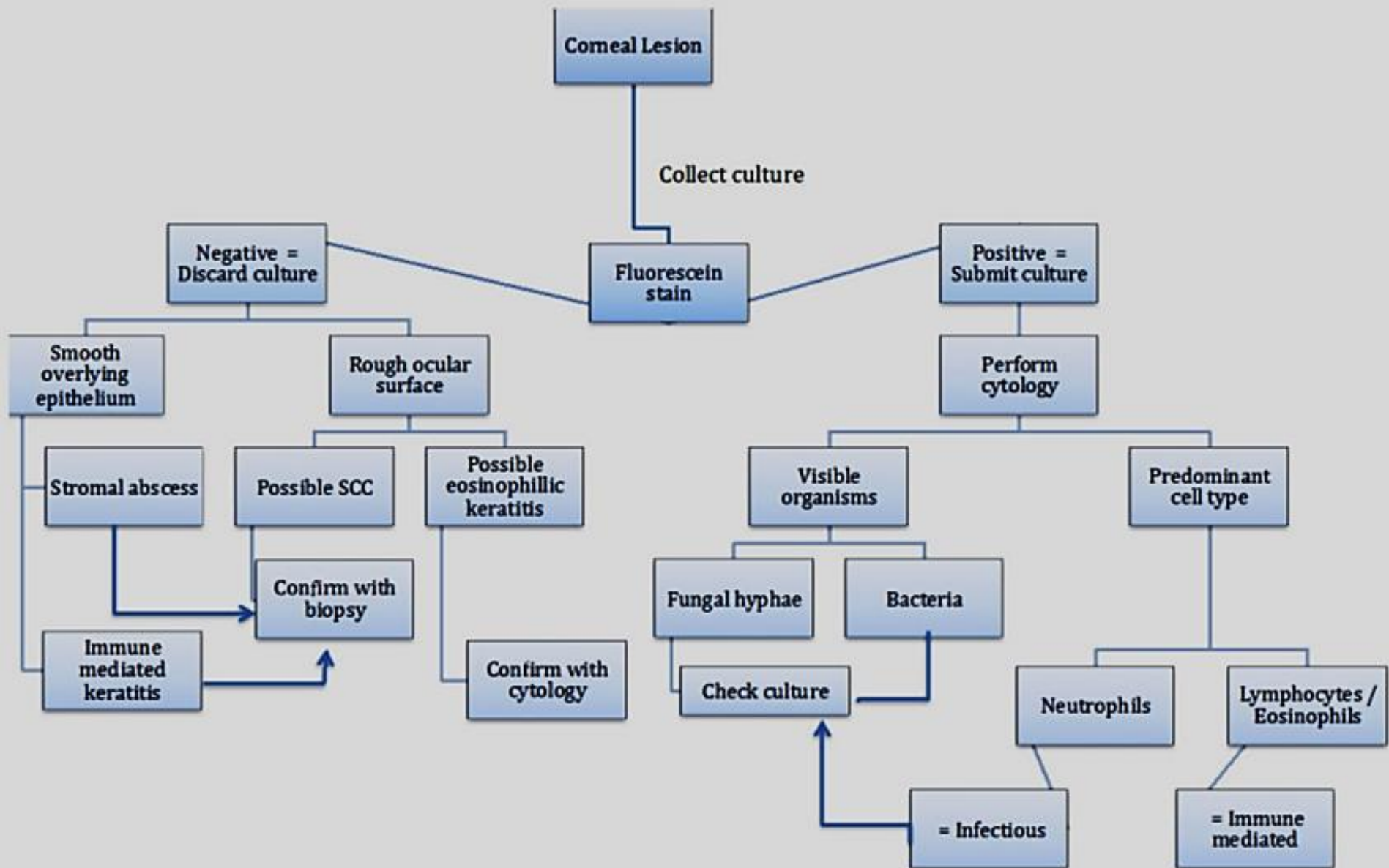
- slit lamp biomicroscope
- microbiological sampling → AB test
- cytologic sampling → fungal hypha- Pas/Grocott stain
- fluorescein dye



Descemetocoele:

fungi > bact., special fluorescein dye

danger of perforation → prompt surgical intervention }

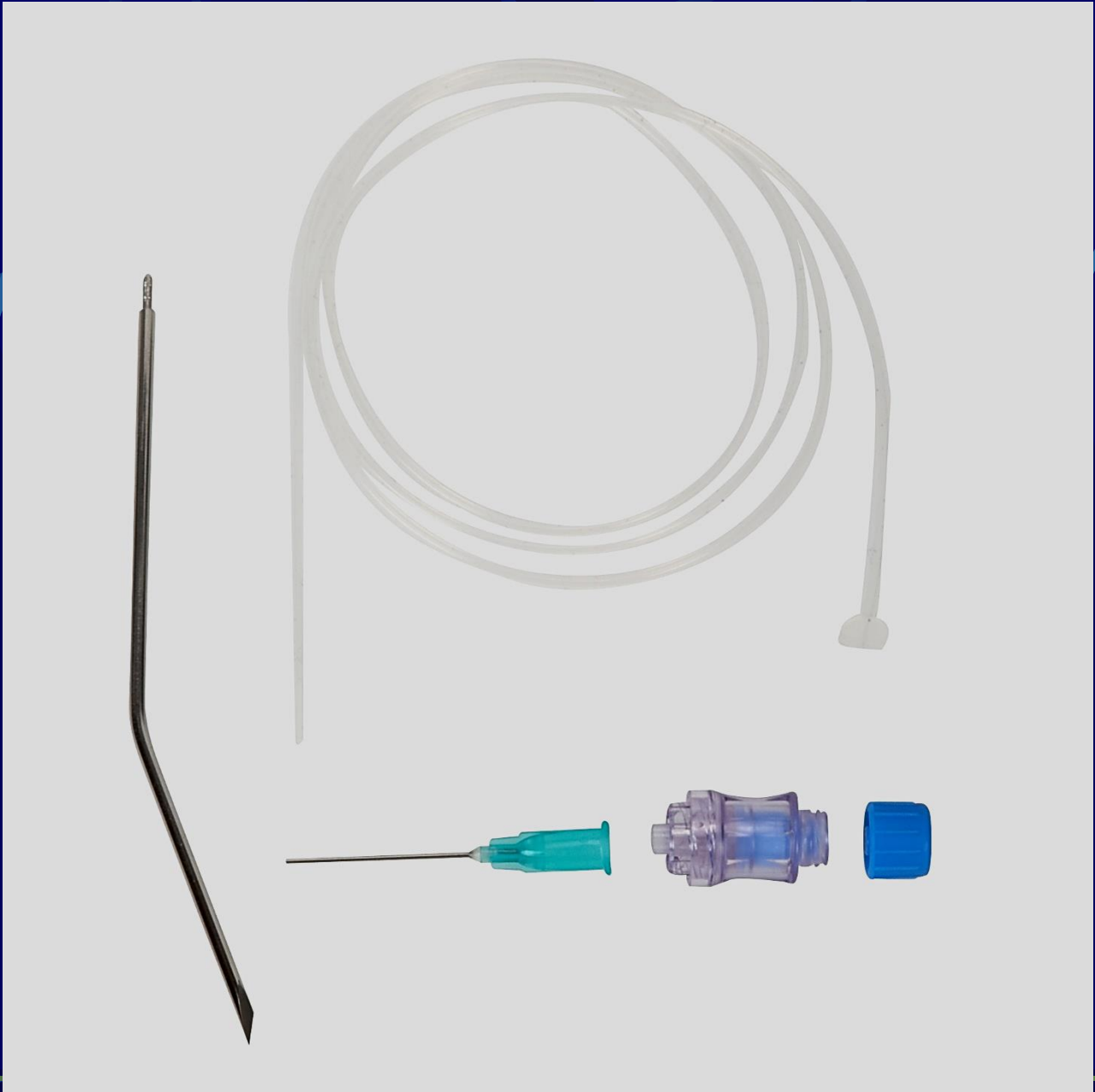


Therapy:

SPL:

- AB (chloramphenicol, tobramycin, gentamycin, ciprofloxacin) q2-6 h
- antimycotic (natamycin, fluconazol, voriconazol): q4-6 h
- antiproteinase: autolog serum or 0,1% EDTA or 10% acetylcistein q1-2 h
- atropin 1% q4-6 h, decreasing/tapered dose
- flunixin or phenylbutazone iv/po 5-7 days
- (syst. antibiotic)

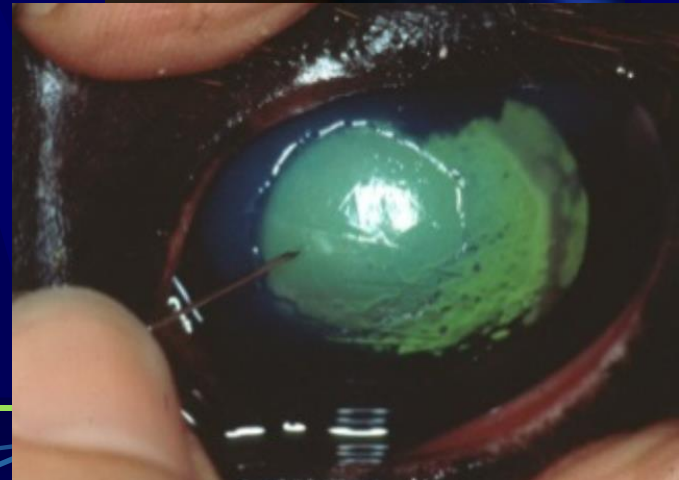
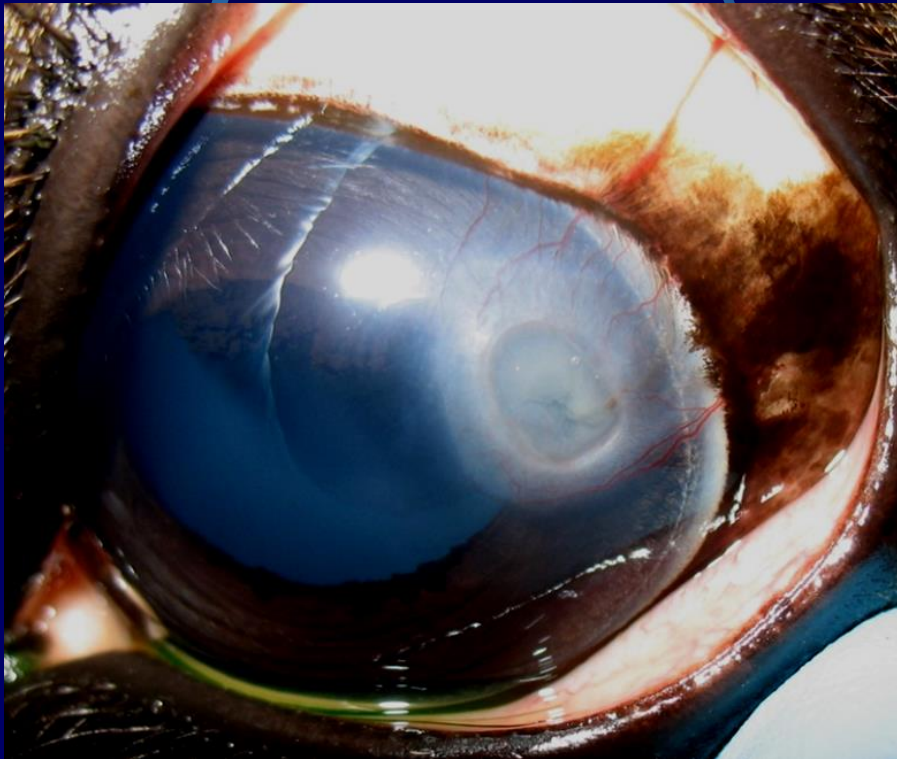
Contraindicated: corticosteroids & local anesthetics





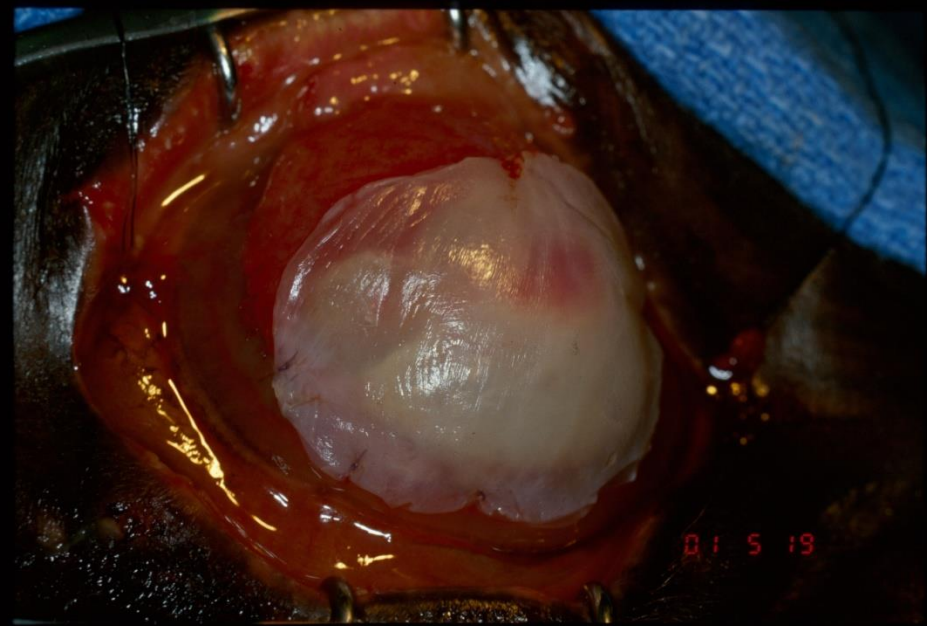
Surgery

- superficial, indolent, persistent:
Debridement
Algerbrush, grid keratotomy



Surgery

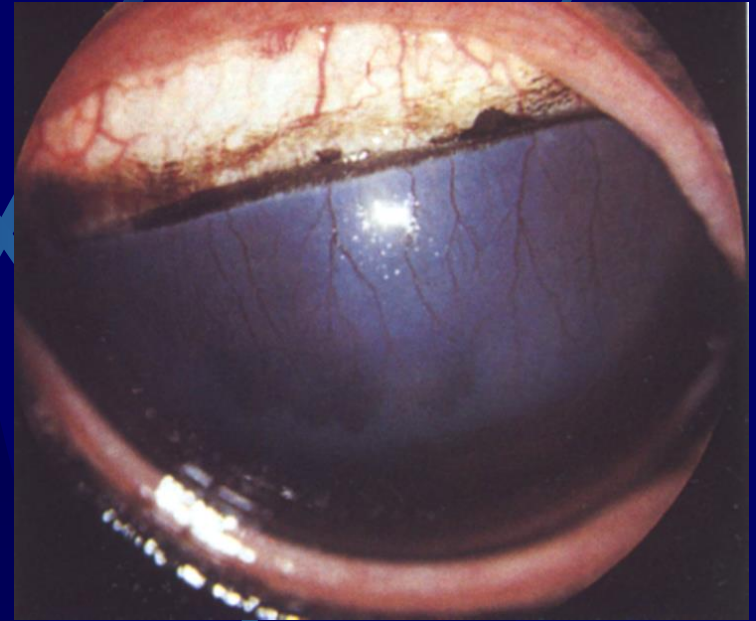
- superficial, indolent, persistent: Algerbrush, grid keratotomy
- deep: debridement keratectomy + pedicle conj.flap / amniotic membrane graft



Nonulcerative keratitis

1. IMMCK

- superficial epithelial k. →
- stromal k. ↘
- endotheliitis ↓



Nonulcerative keratitis

2. Eosinofil keratoconjunctivitis
- proliferation

3. Viral keratitis
EHV-2; EHV-5



Corneal stromal abscess

Etiology:

Epithelial cells cover (healed ulcer) encapsulated infectious agents/foreign body in the stroma (Fluorosc.-)

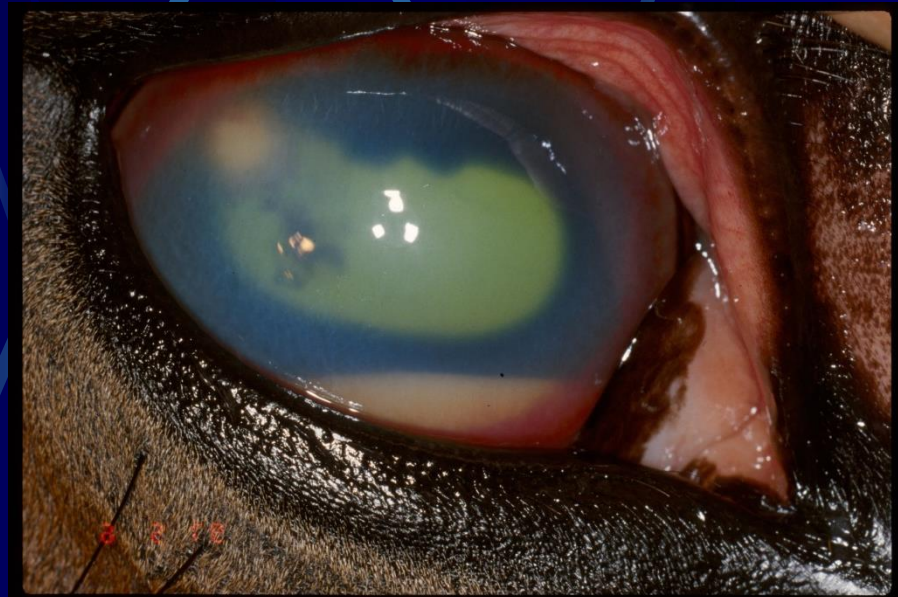
Prominent yellowish opacity + vascularisation + uveitis

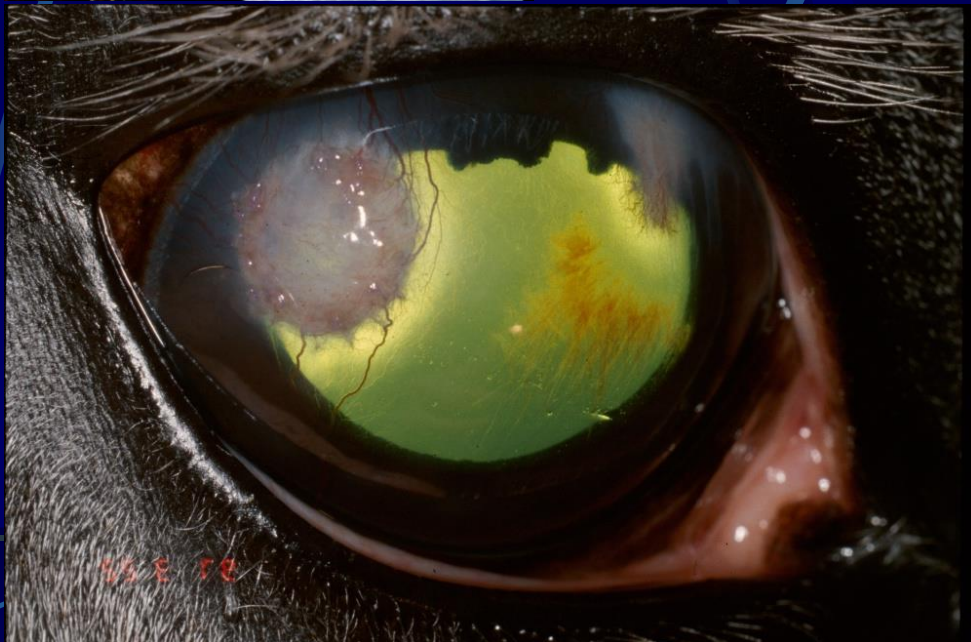
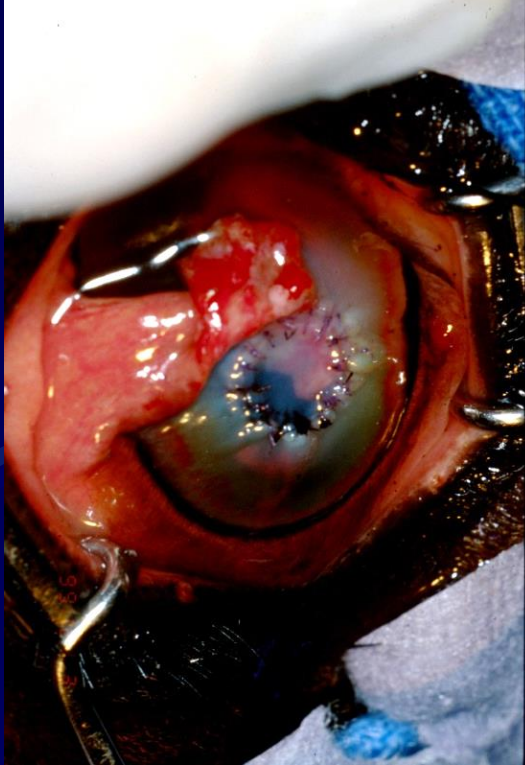
Tx: ≈ deep ulcer

Sx:

lamellar keratoplasty
penetrating keratoplasty

} cornea transplantation





Equine recurrent uveitis (ERU)

Classic:- active phase+calm periods

Subclinical uveitis:- no observed bout of inflamm.
(insidious) - chronic ERU (cataract, phthisis)
 - Appaloosa, draft

Primarily posterior uveitis (European horses-
hyalitis/vitreitis)

Equine recurrent uveitis (ERU)

Causes:

First uveitis-Ocular insult

- Trauma
- Infectious (Leptospira, Strepto.)
- Corneal disease

80 % unilateral, at 4-8 years of age 1. Uveitis

1. episode acute uveitis → immune response → multiple recurrent episodes = ERU

Uveitis results in the influx of inflamm. cells into the eye (Tly) --
-persistent Ly-s → hypersensitivity of uvea.

Complex pathophysiology:

- non-specific multifocal origin
- individual genetic predisposition (MHC I. ELA-A9)
- immun-mediated recurrent/persistent panuveitis
- blood-aqueous humor, blood-retina barriers break down



Pathophysiology:

Types

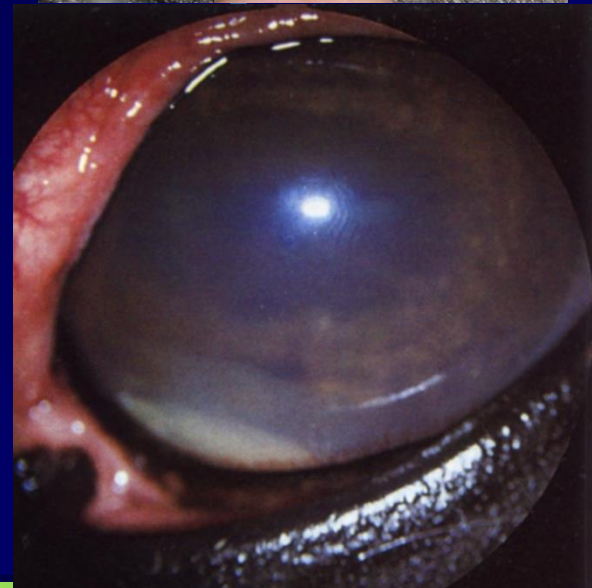
- Classic: active≈quiescent/chronic
- Insidious→chronic (Appaloosa, draft horse)
- Posterior

ERU:

- Persistence of sensitised T-ly-s in the eye
- re-exposure to the original Ag/ self-protein (molecular mimicry)
- Decreased down-regulation of T-cells

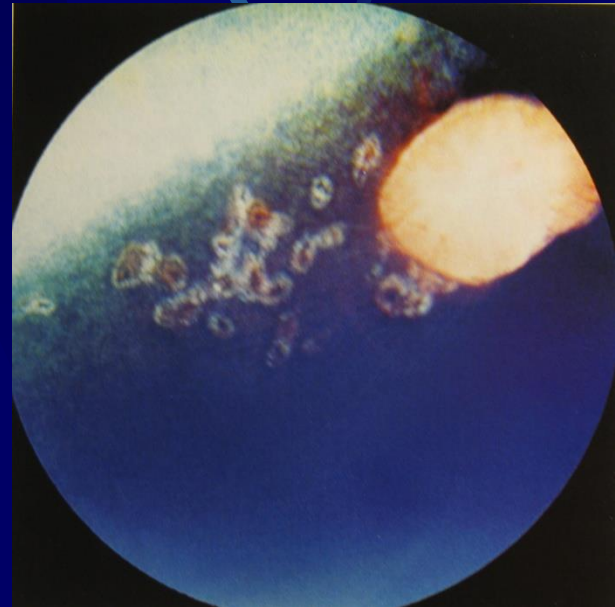
Acute clinical signs (active phase):

- photophobia, miosis
- corneal edema
- aq. flare, hypopyon
- hypotony
- chorioretinitis



Chronic phase (remnants-pre-purch. exam!):

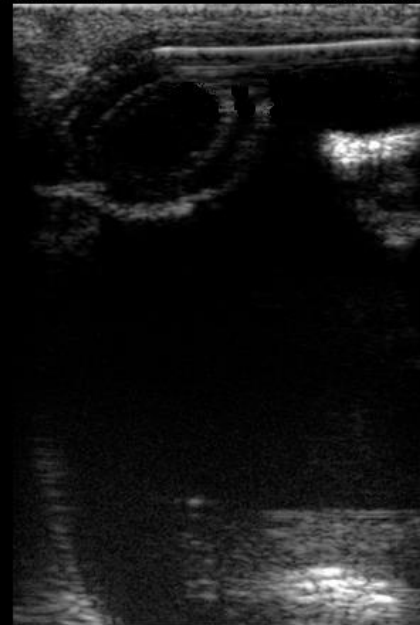
- corneal edema
- synechia posterior (iris bombae, pupillar occlusion)
- pigment on the lens capsule, cataract, lens sublux. / lux. (glaucoma)
- peripapillary depigmentation





SZIE-ÁOTK Nagyállat Klinika
FLANCOS 1212/2003 J.SZ. MZ
MI:1.4
FR:8
G: 79%
Prs:2

2003-05-16 8805 *
□ 10:36:30 8.0MHz



B-K Medical



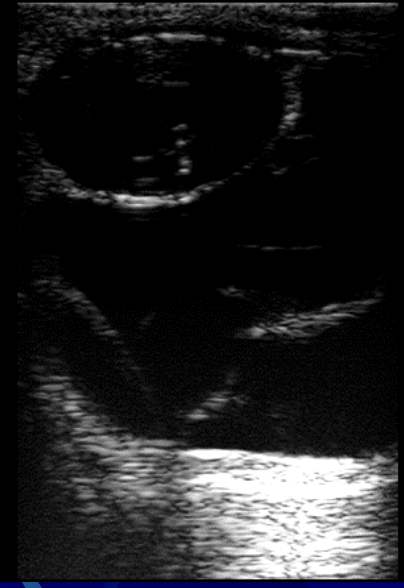
SZIE-AOTK Nagyállat Klinika 2003-01-17 8805 *
GURON 1019/2003 MZ BAL SZEM □ 10:21:58 12.0MHz
MI: 0.7
FR: 32
G: 46%
Prs: 2



x: 30mm

B-KMedical

SZIE-AOTK Nagyállat Klinika 2007-02-09 8805 *
BOCI MZ □ 11:25:51 8.0MHz
MI: 1.4
FR: 60
G: 79%
Prs: 2



B-KMedical



Treatment:

- local corticosteroids (dexam. 3 mg / predn. 40 mg, triamcinolon 2mg subconj.)
- atropine (1 mg subconj., later 2% eyedrop/ointment)
- corneal injury → cyclosporin / diclofenac
- systemic NSAID

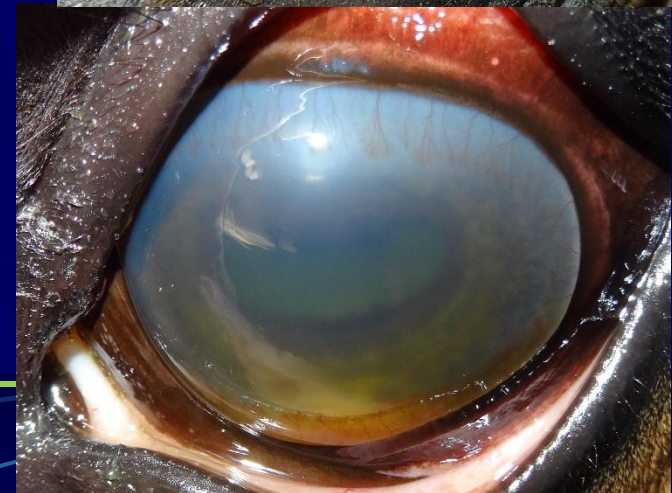
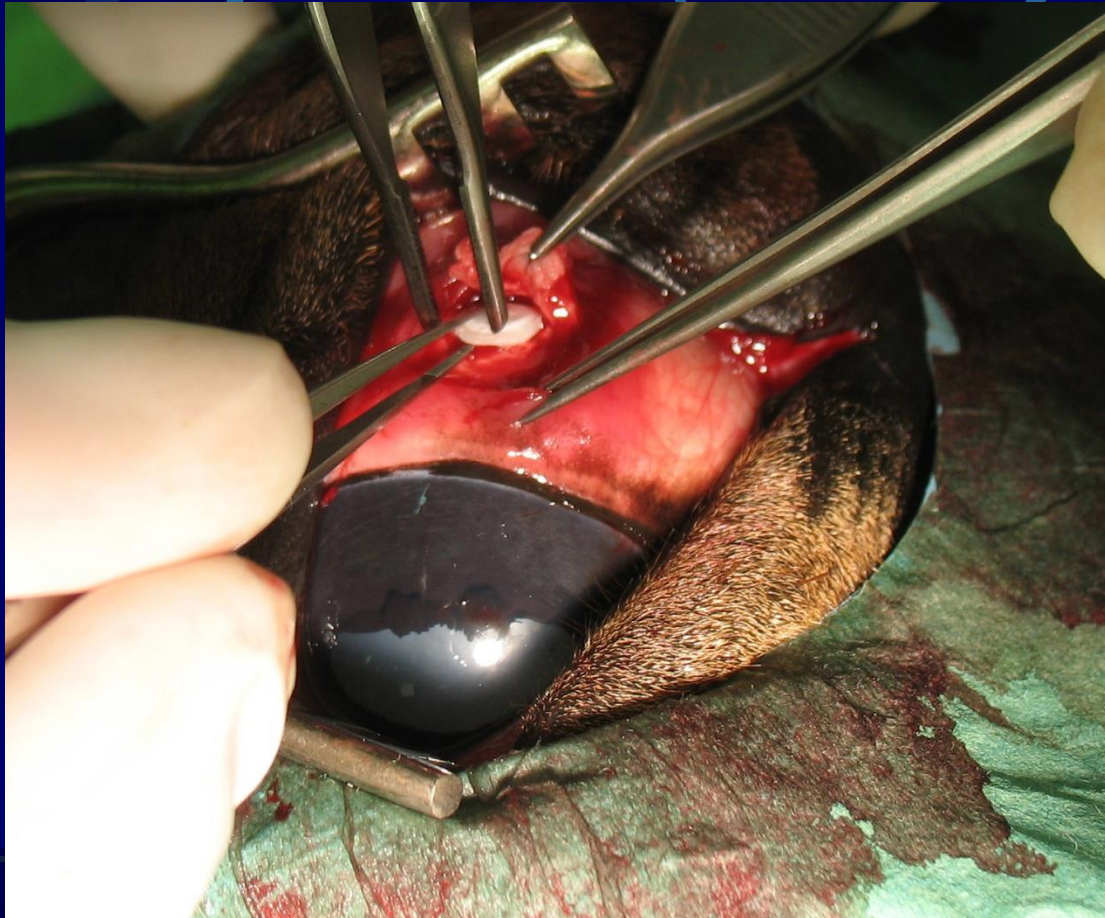
For 14 days, then must taper off dose +10 days

Important rule!
Every painful, red (injected) eye needs to be stained with fluorescein to diagnose or rule out corneal ulcers!



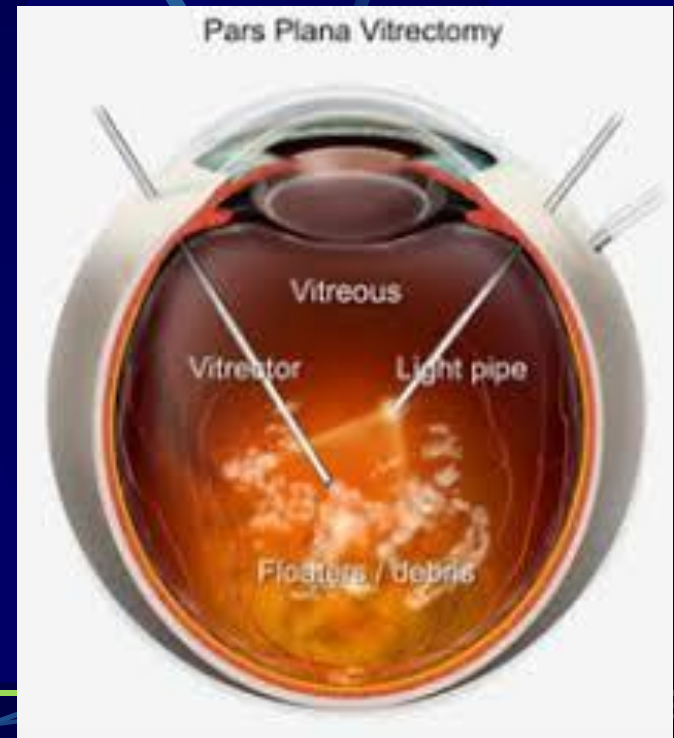
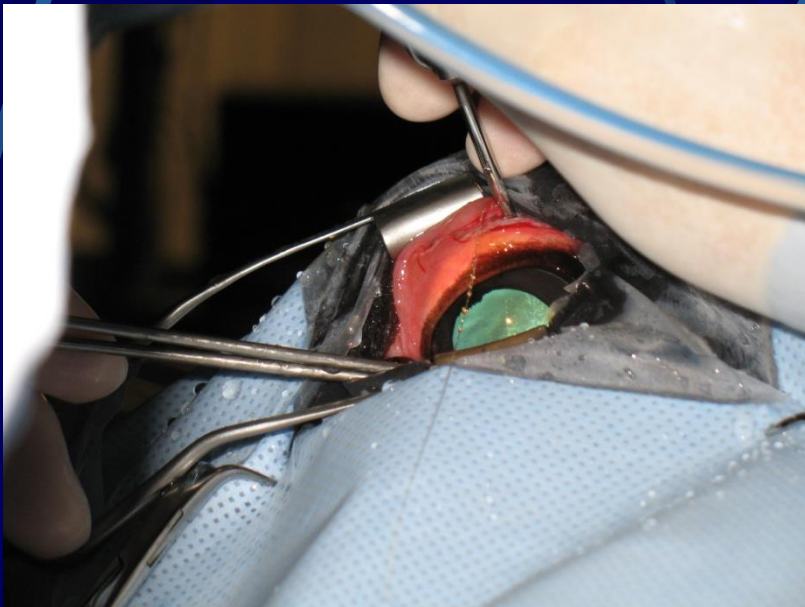
Surgical Treatment:

- bioerodible, sustained release of CsA-immunosuppressant,
- deep scleral lamellar cyclosporine implant
- against cell-mediated immunity



Treatment:

- Surg.: pars plana vitrectomy in calm period:
- to eliminate the recurrent inflammation
 - to improve the vision
 - to save the eye bulb



Treatment:

Visual eye: 4 mg preserve free gentamycin intravitreal injection

Non-visual eye: 50 mg gentamycin IVI

Intravitreal injection of low-dose gentamicin in horses for treatment of chronic recurrent or persistent uveitis: preliminary results

Conference Paper (PDF Available) · June 2015

Conference: Conference: International Equine Ophthalmology Consortium/Acrivet, Inc. Symposium, At Savannah, Georgia, USA

[Richard J McMullen Jr](#), Auburn University

Case 1

A Sarcoid

B Habronemiasis

C Nictitans prolapse

D Melanoma



Case 2

- A Habronemiasis
- B Orbital fat prolapse
- C Limbal squamous cell carcinoma
- D Melanoma



Case 3

- A Corneal SCC
- B Fungal keratitis
- C Keratomalacia
- D Eosinophylic keratitis



Case 4

A Chemosis

B Lymphoma

C Glaucoma

D Retrobulbar tumor



References

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- **B. Gilger: Equine Ophthalmology 3rd ed., Elsevier Saunders, Missouri, 2017.**
- KN Gelatt, BC Gilger, TJ Kern: Veterinary Ophthalmology: Two Volume Set, 5th Ed. 2013.

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Thanks for attention!