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DISEASES OF THE CORNEA

Department of Ophthalmology

Viral keratitis

- Herpes simplex keratitis
- Herpes Zoster keratitis
- Adenoviral keratitis

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Herpes simplex virus

- DNA Virus
- Infection is common upto 90% of the population- most of it is subclinical
- Humans are the only natural reservoirs
- Source of infection –

  direct contact with the lesions,

  by salivary droplets

  fomites

  by asymptomatic virus shedding carriers

- HSV-1 causes infection over face ,lips and eyes (mucocutaneous distribution of trigeminal nerve)
- HSV-2 causes genital herpes
- Infection can be

  - Primary

  - Recurrent

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HSV infection

- Congenital ocular herpes
  - skin vesicles
  - eye ds
  - microencephalopathy
- Neonatal HSV keratitis
  - 2 days to 2 weeks
- Primary ocular herpes
- Recurrent ocular herpes

Primary infection

- Occurs in early childhood
- Uncommon during first 6 mts
- Transmission through droplet infection or direct innoculation
- May be subclinical or fever,malaise and URTI

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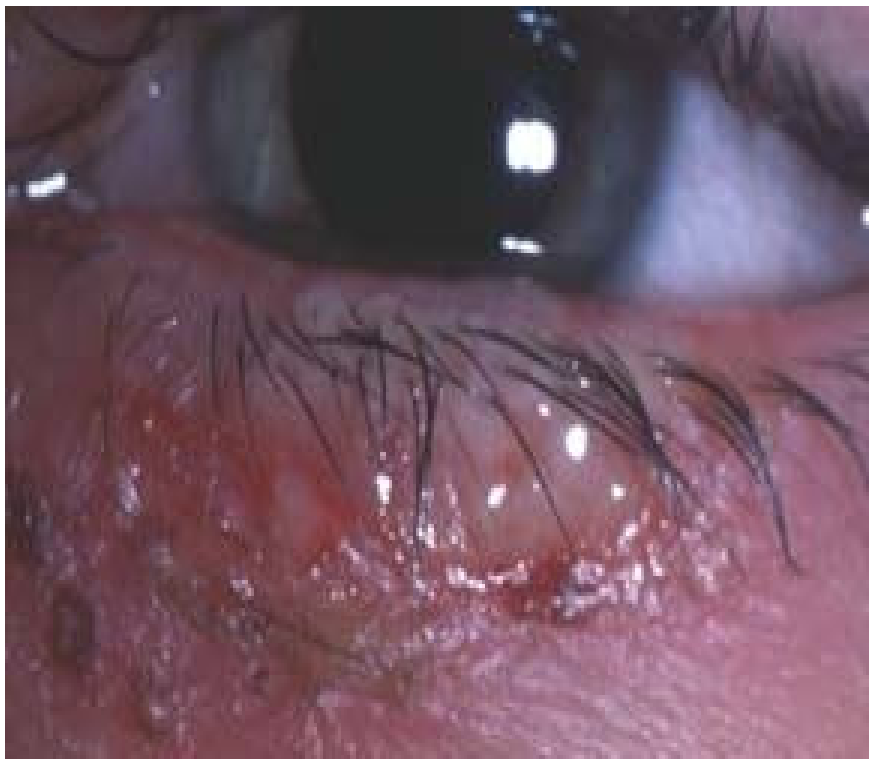
VIRAL KERATITIS

HERPES SIMPLEX KERATITIS

Primary

- Vesicular blepharitis
- Follicular conjunctivitis
- Keratitis → Punctate keratitis
  → Dendritic ulcer



Recurrent infection

- 36% at 5 yrs
- 63% at 20 years
- Activated by various trigger factors
  - fever
  - surgery
  - systemic illness
  - immunosupression etc

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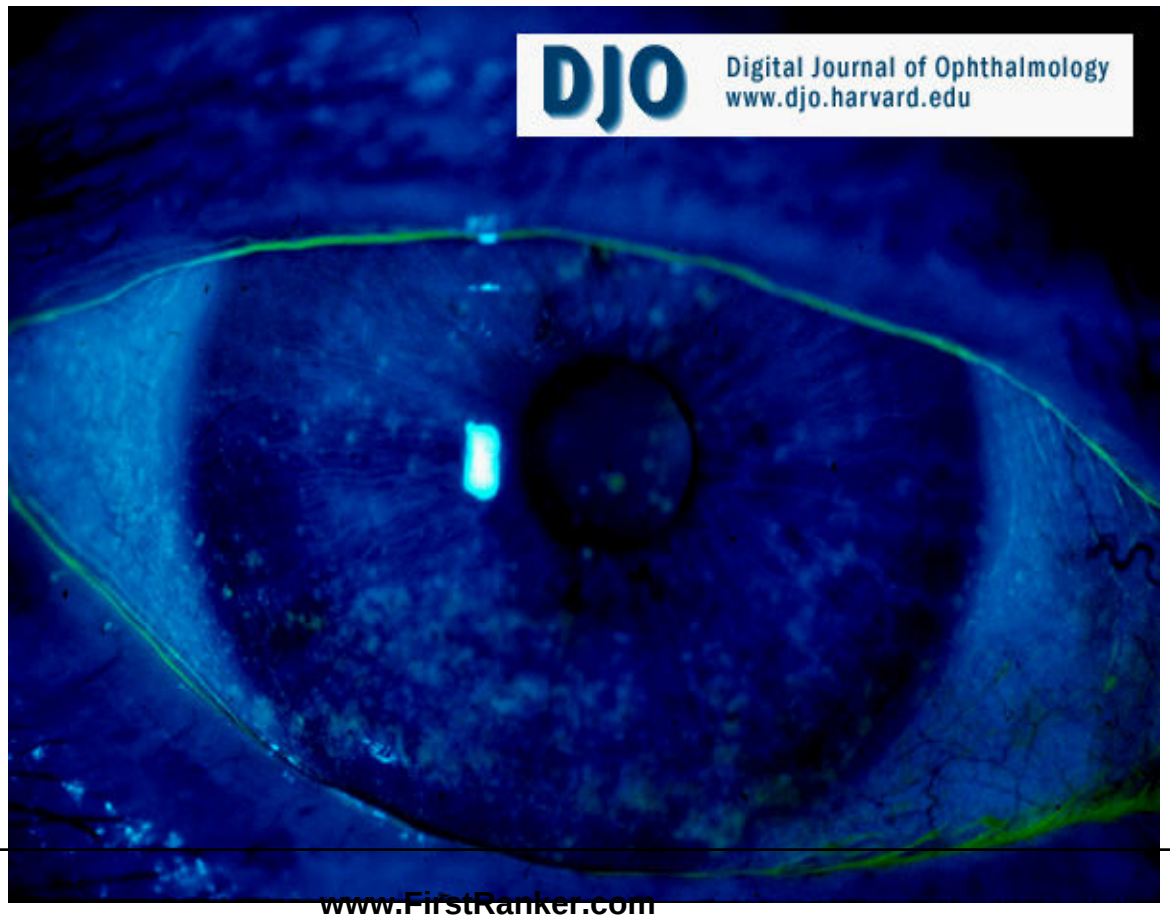
RECURRENT HERPES SIMPLEX KERATITIS

I. Infectious epithelial keratitis
   A. Cornea vesicles
   B. Dendritic ulcer
   C. Geographic ulcer
   D. Marginal ulcer
II. Neurotrophic keratopathy
III. Stromal keratitis
   A. Necrotizing stromal keratitis
   B. Immune stromal (interstitial) keratitis
IV. Endotheliitis
   A. Disciform
   B. Diffuse

PUNCTATE EPITHELIAL KERATITIS



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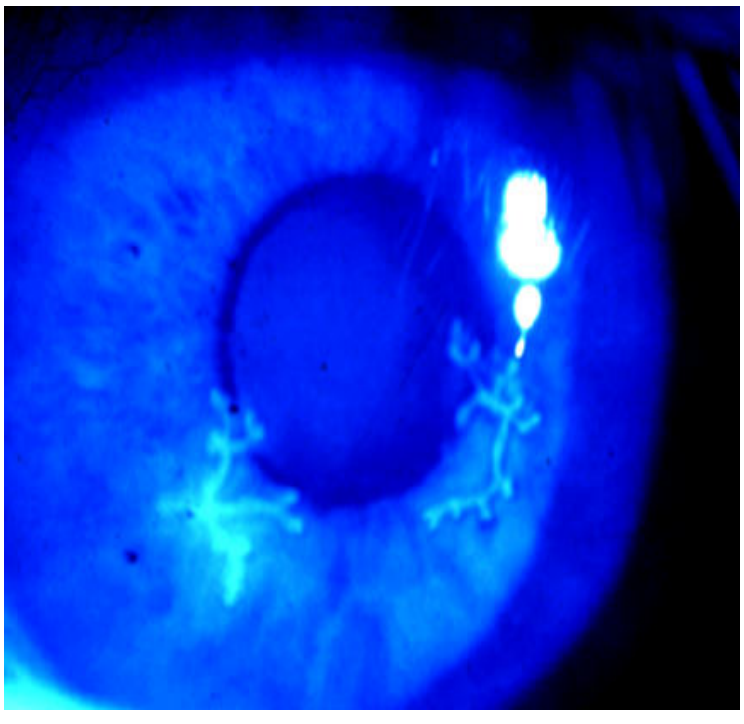
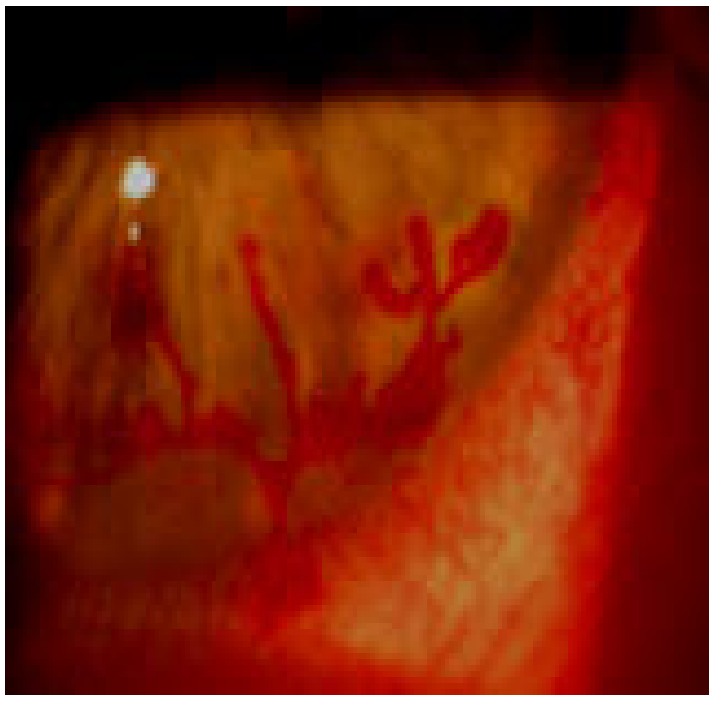
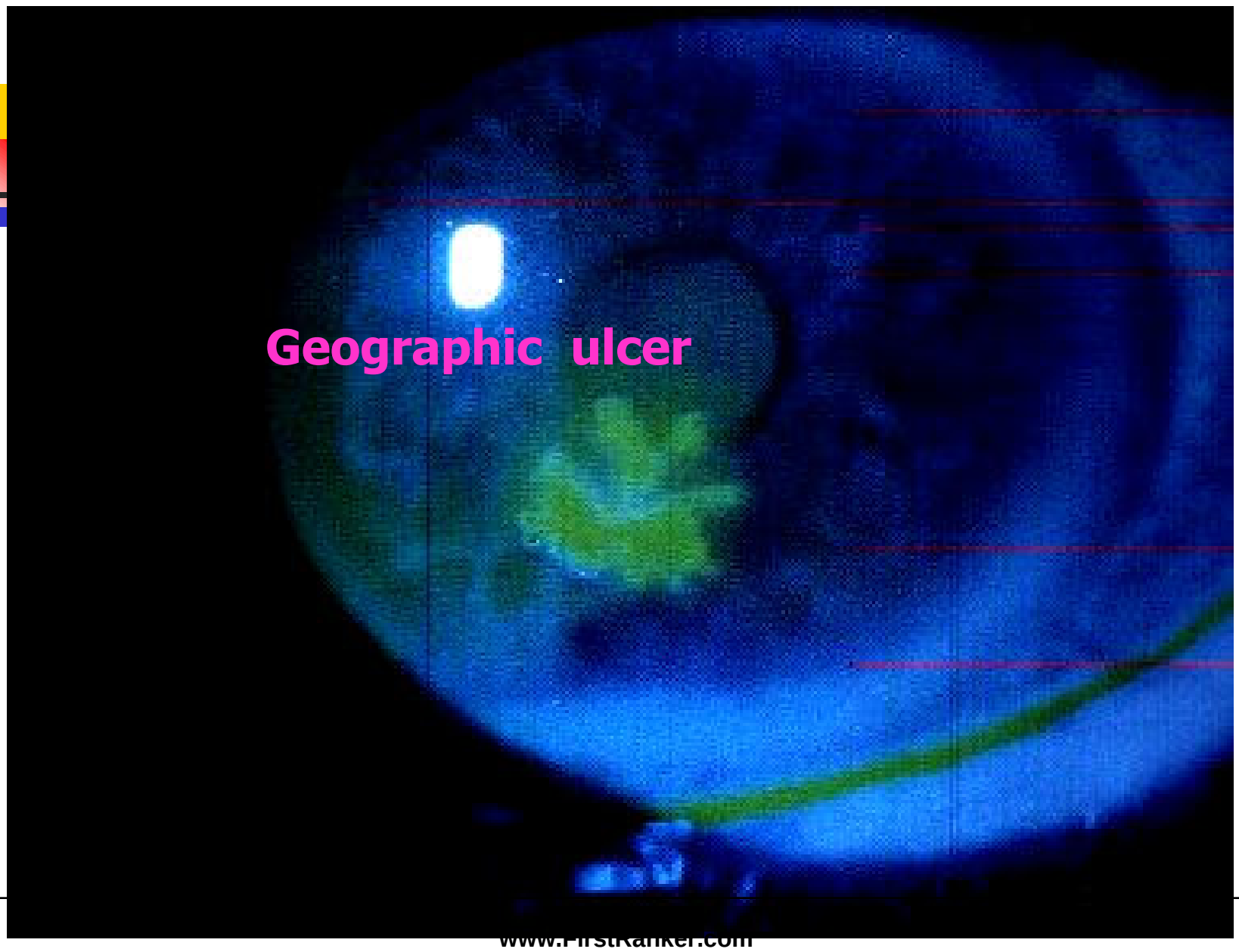
DENDRITIC ULCER

FLOURESCEIN STAIN



ROSE BENGAL STAIN





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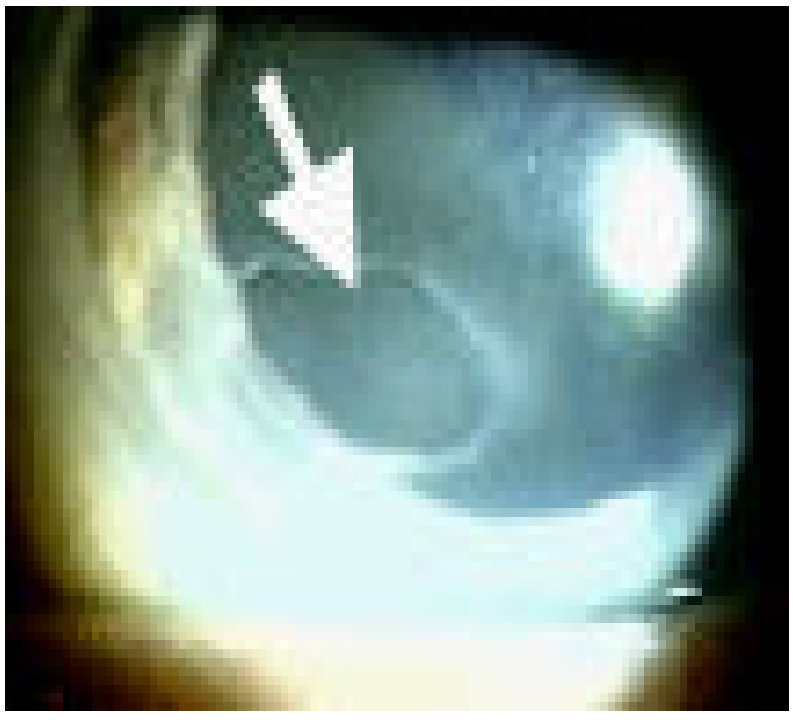
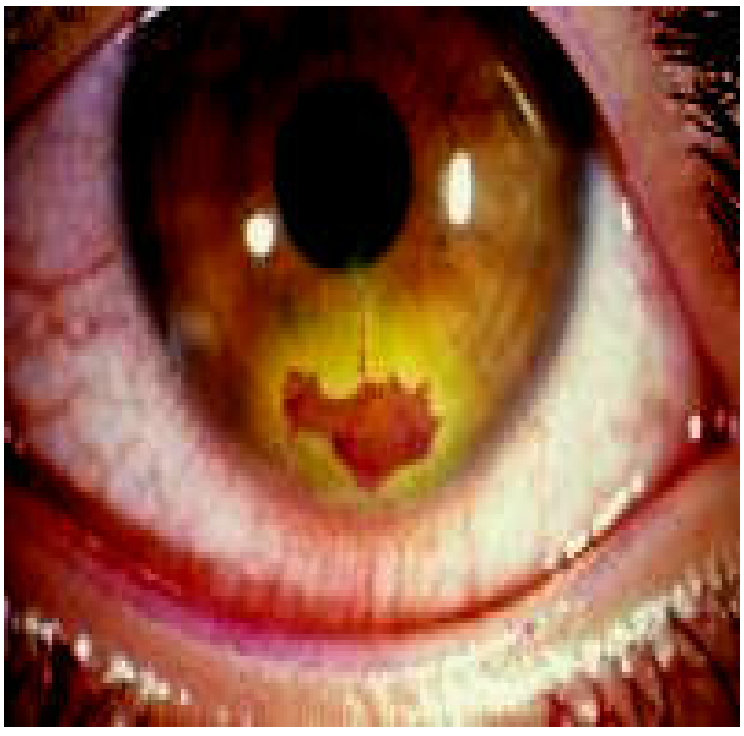
HERPES SIMPLEX EPITHELIAL KERATITIS

TREATMENT

- Topical antivirals
  - Acyclovir eye oint. 3%
  - Ganciclovir gel 0.15%
  - Triflurothymidine drops 1%
  - Vidarabine oint. 3%
- Cycloplegics
- Debridement of ulcer edges
- Supportive measures
- Topical steroids ——————————→ ×××

Metaherpetic keratitis / Neurotrophic epithelial keratitis





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Metaherpetic keratitis / Neurotrophic epithelial keratitis

- Occurs in patient with previous HSV epithelial disease
- Due to impared corneal innervation
- Nonhealing sterile ulceration
- Round ,oval ulcers with grey thickenned rolled up margins
- Complication – scarring , neovascularization, necrosis , perforation, 2° bacterial infection

Treatment

- Bandage contact lens
- Topical antibiotics
- Tear substitutes
- PK

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HERPES SIMPLEX STROMAL KERATITIS

Disciform Stromal endothelitis

- Recurrent form- 25% of ocular herpes
- Delayed hypersensitivity reaction to HSV antigen
- Stromal inflammation

  \+

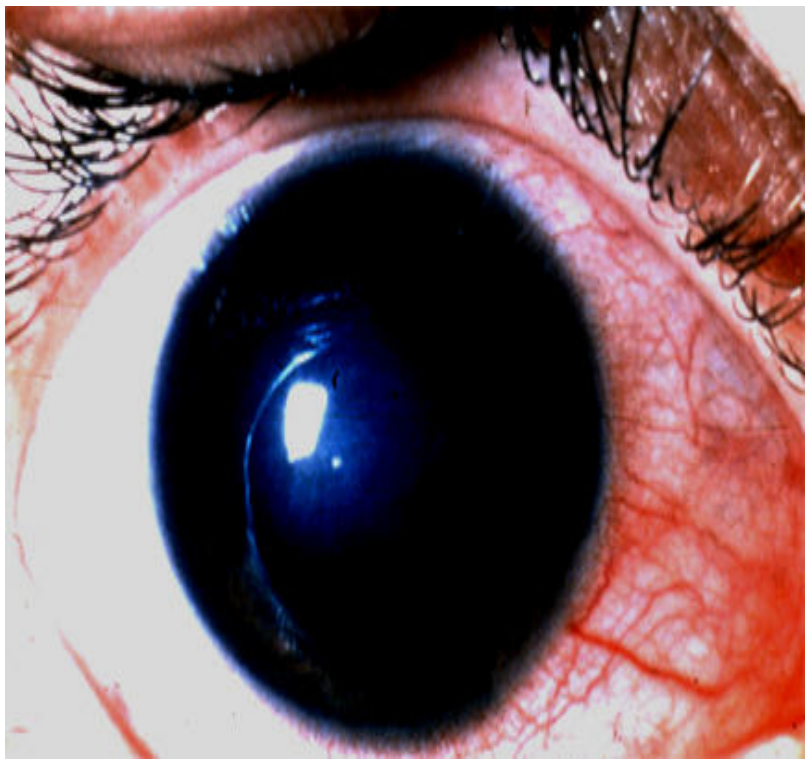
  Endothelial damage

  corneal edema, KP's

  Descemets folds

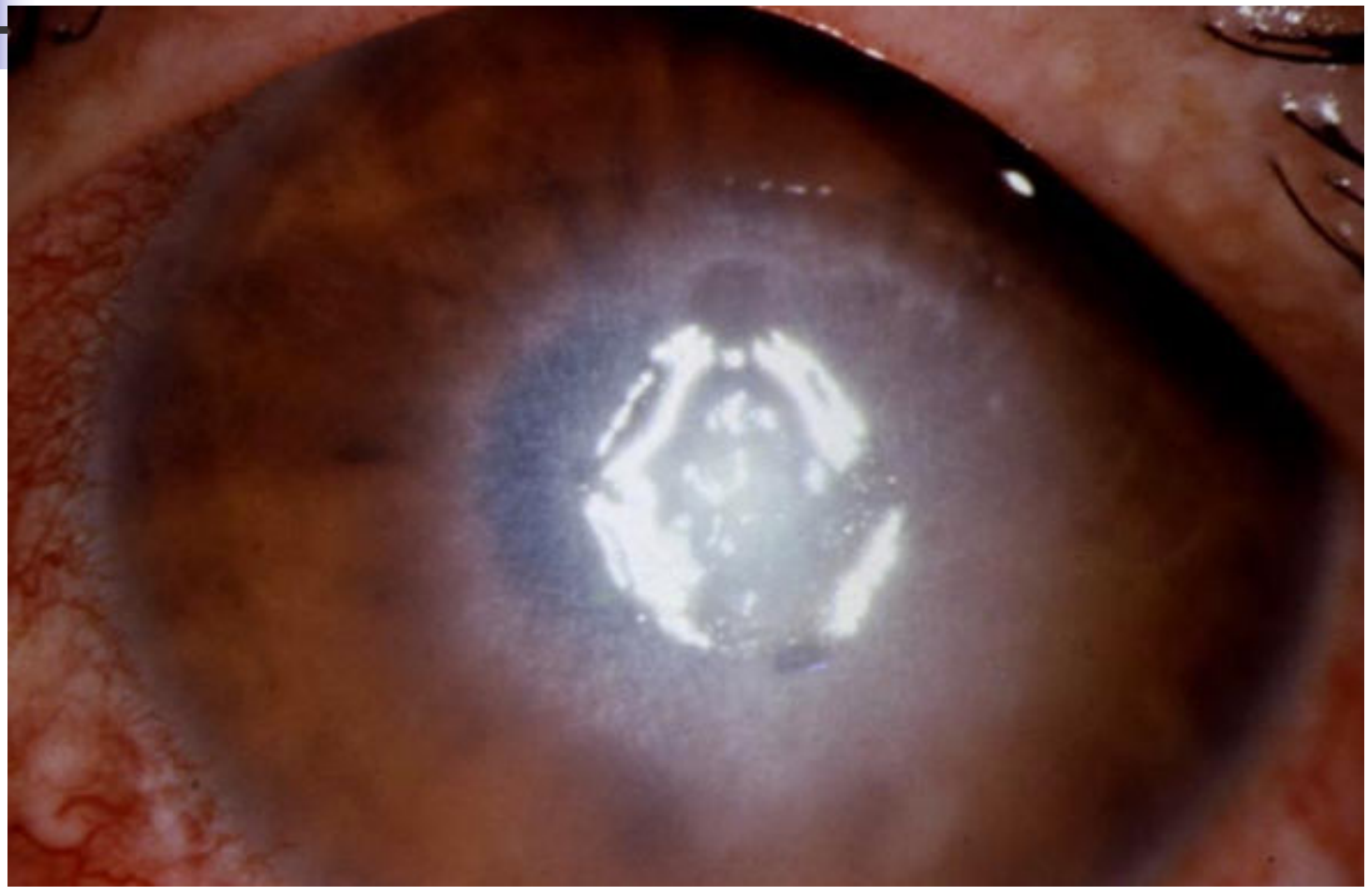
  corneal sensations

  IOP +/_



✓ Topical steroids + antivirals

DISCIFORM ENDOTHELITIS



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HERPES SIMPLEX STROMAL KERATITIS

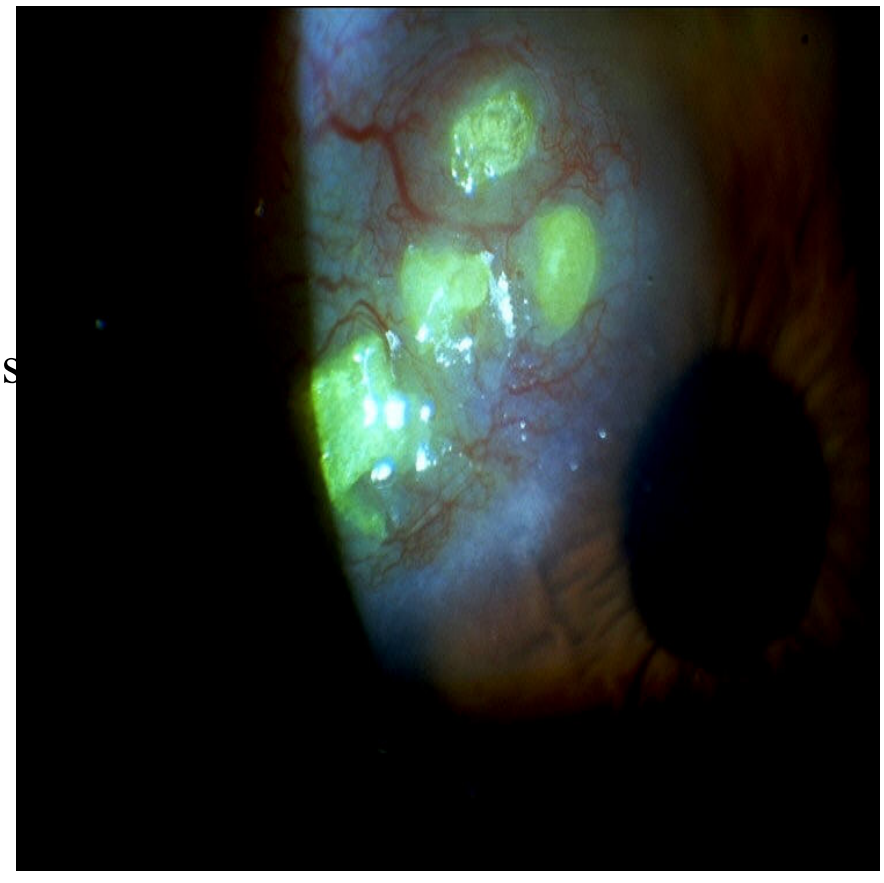
STROMAL NECROTIC KERATITIS

- Active viral invasion

  \+

  Tissue destruction

- Necrotic cheesy white infiltrates
- Stromal vascularization
- Treatment topical steroids
  antivirals
  cycloplegics



- Oral aciclovir 400mg b.d. for 1 year reduces the rate of recurrence by 45%

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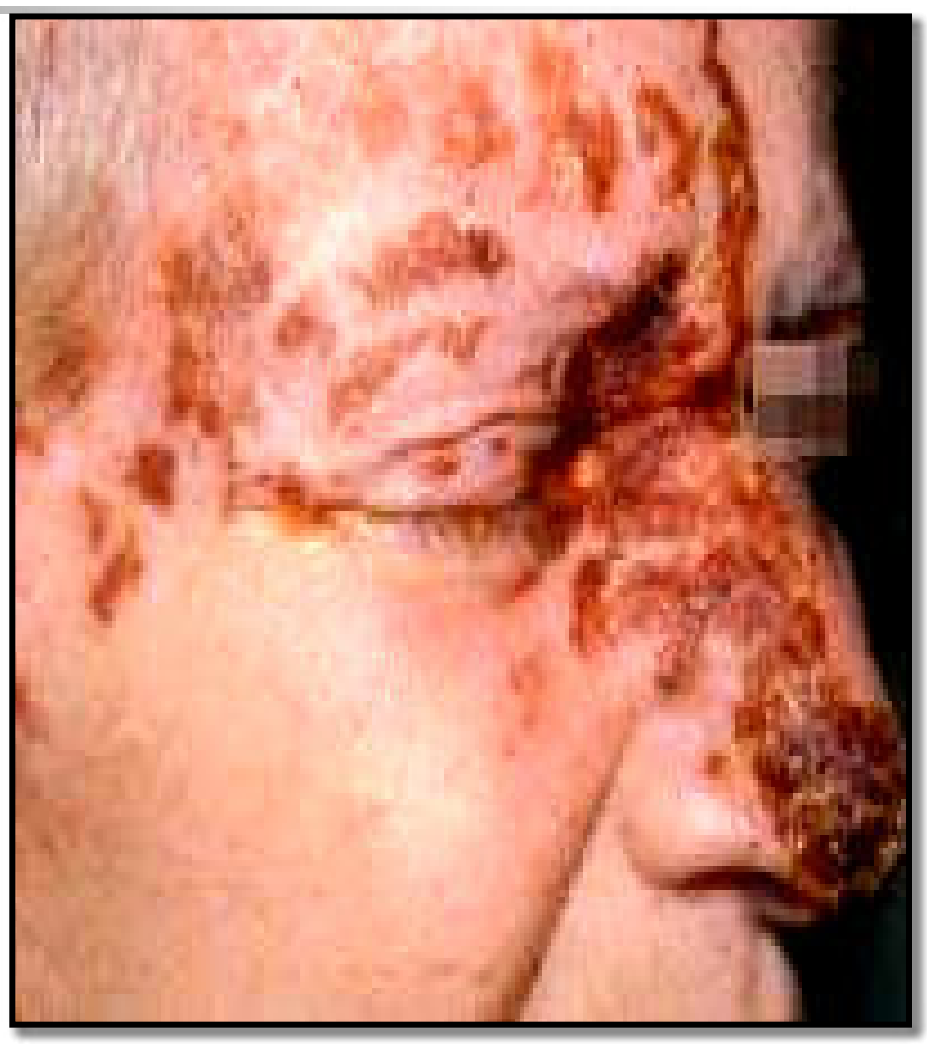
HERPES ZOSTER OPHTHALMICUS

- Varicella zoster virus
- Latency Gasserian ganglion
- Ophthalmic div. of 5th nerve
- 50% have ocular lesions
- Unilateral
- Systemic features
- Cutaneous lesions
- Ocular lesions



- Seen more in older age group - >75yrs
- Systemic – fever , malaise and eruptions preceded by sever neuralgic pain
- Ocular manifestations are uncommon

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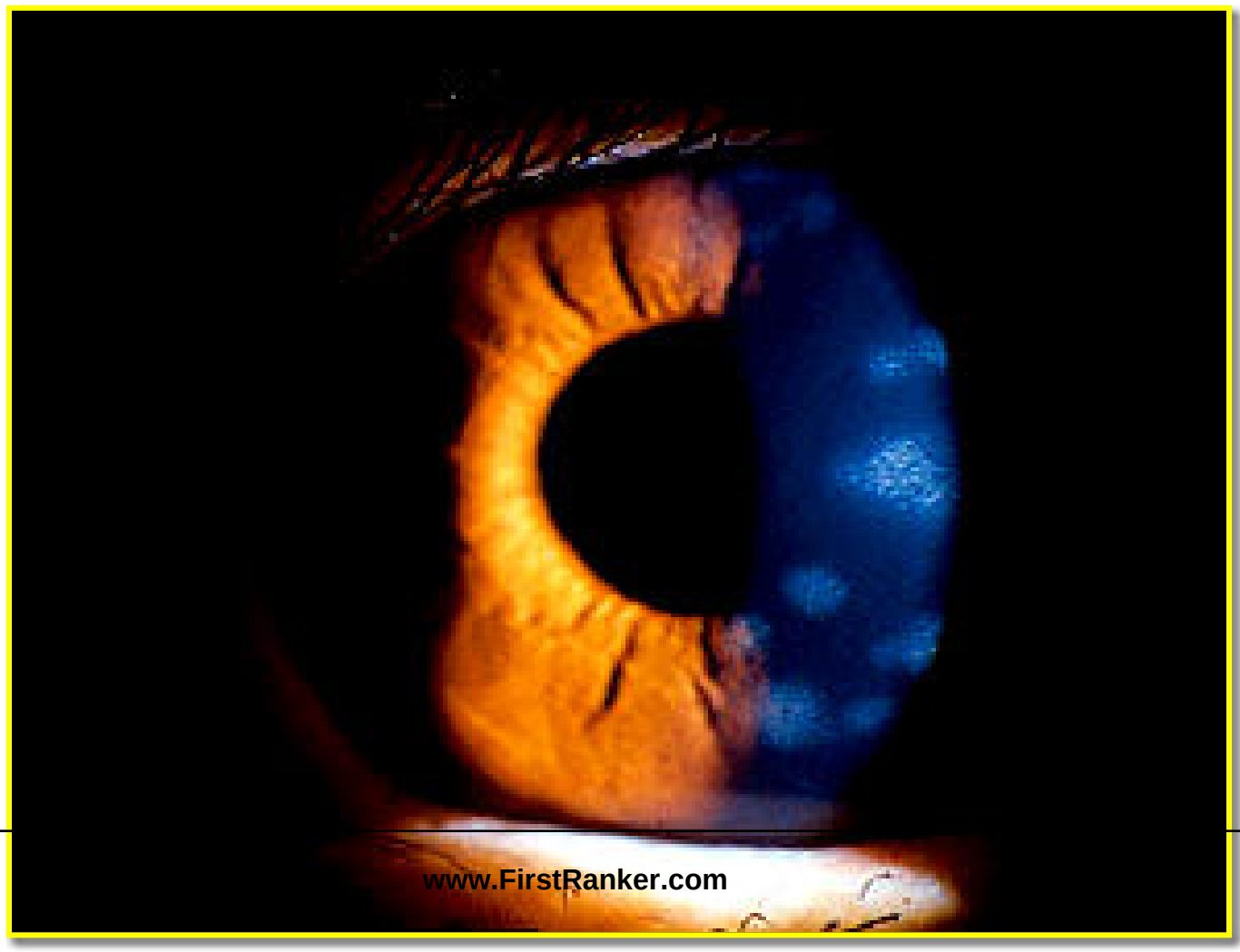
Ocular lesions

Lids
Conjunctivitis
Scleritis
Iridocyclitis
Secondary glaucoma
Acute retinal necrosis
Motor nerve palsies
Optic neuritis

Keratitis
SPK
Dendritic
Nummular
Disciform
Trophic
Exposure

NUMMULAR KERATITIS



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TREATMENT OF HZO

SYSTEMIC THERAPY

- Oral antivirals Acyclovir - 800mg x10days
  Valciclovir
- Analgesics
- Systemic steroids
- Amitryptyline
- Cimetidine

LOCAL THERAPY

Ocular lesions

Topical acyclovir
Topical steroids
Cycloplegics
Anti glaucoma drugs
Artificial tears
Tarsorrhaphy
Keratoplasty

Protozoal kerititis

- Acanthamoeba
- Microsporidia

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ACANTHAMOEBA KERATITIS

Free lying amoeba soil, sewage, air
fresh, well, sea water

Ocular infection CL wearers using home made saline
Swimming in contaminated water
Mild trauma
Opportunistic infection
Orthokeratology

Life cycle

- 2 stages

- Trophozoit stage

- Cyst stage - dormant

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- Symptoms:
  - foreign body sensation
  - photophobia
  - severe pain

ACANTHAMOEBA KERATITIS

SEVERE PAIN disproportional to signs

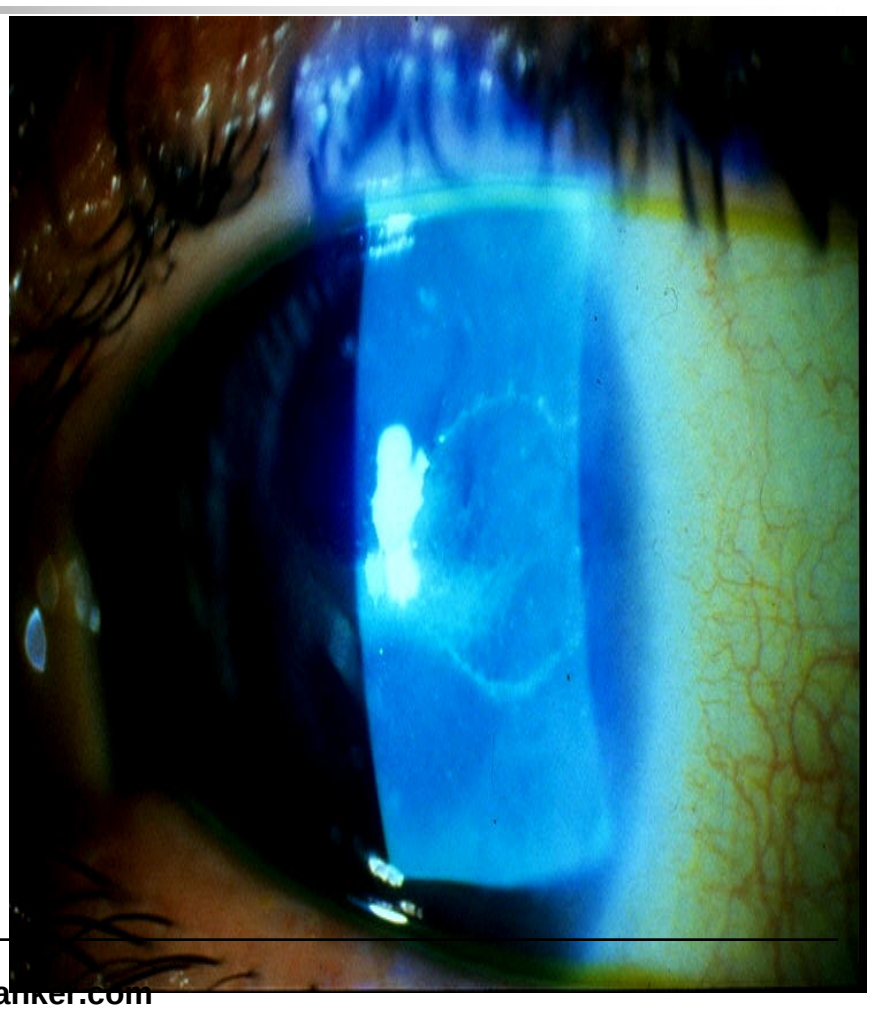
SIGNS

Epithelial stippling with microcystic edema

Dendritiform appearance of epithelium

Radial Keratoneuritis

Ring infiltrate



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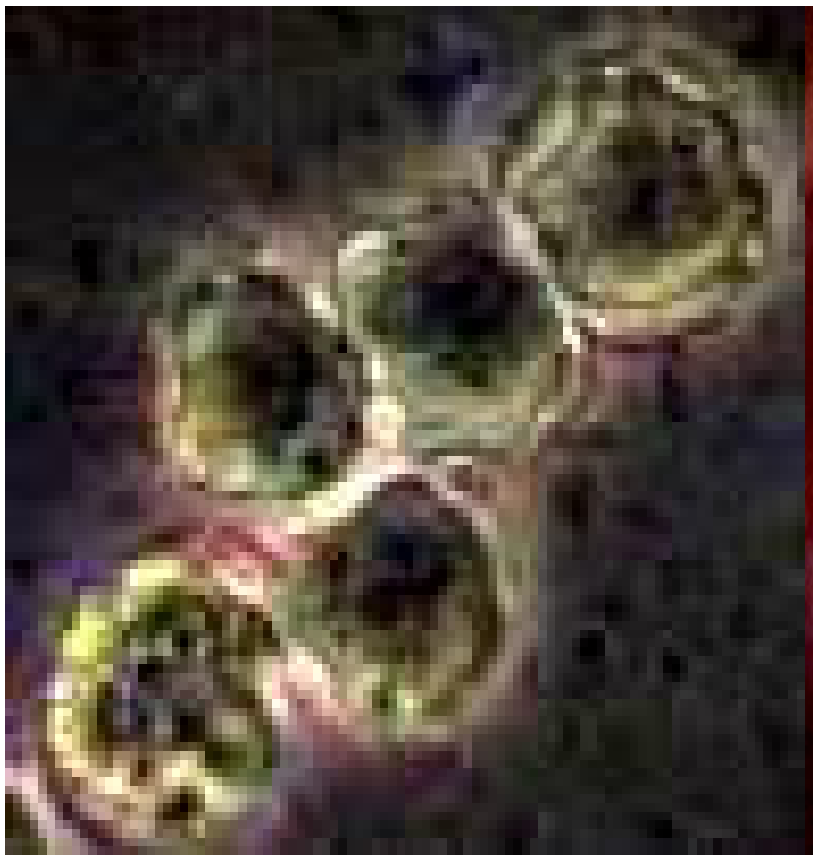
Stromal infection – overlying epithelium may be intact

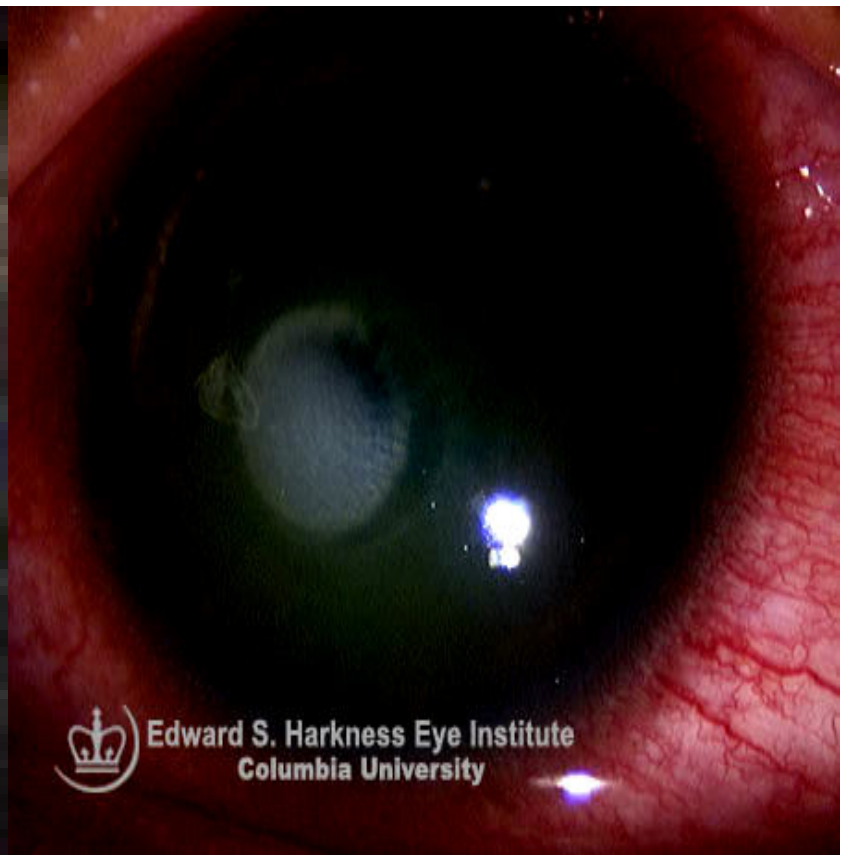
Stromal neovascularization is never seen even in sever and longstanding cases

Scleritis

ACANTHAMOEBA

CYSTS KERATITIS





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ACANTHAMOEBA KERATITIS

Diagnosis

- High index of suspicion
- KOH wet mount
- Calcofluor white stain
- Culture on E.coli enriched non nutrient agar
- Confocal microscopy
- PCR of corneal biopsy specimens

Treatment

- Neomycin drops 1%
- Propamidine isethionate0.1% drops
- Polyhexamethyl biguanide 0.02% drops
- Chlorhexidine 0.02%
- Penetrating keratoplasty

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