Diseases of Cornea

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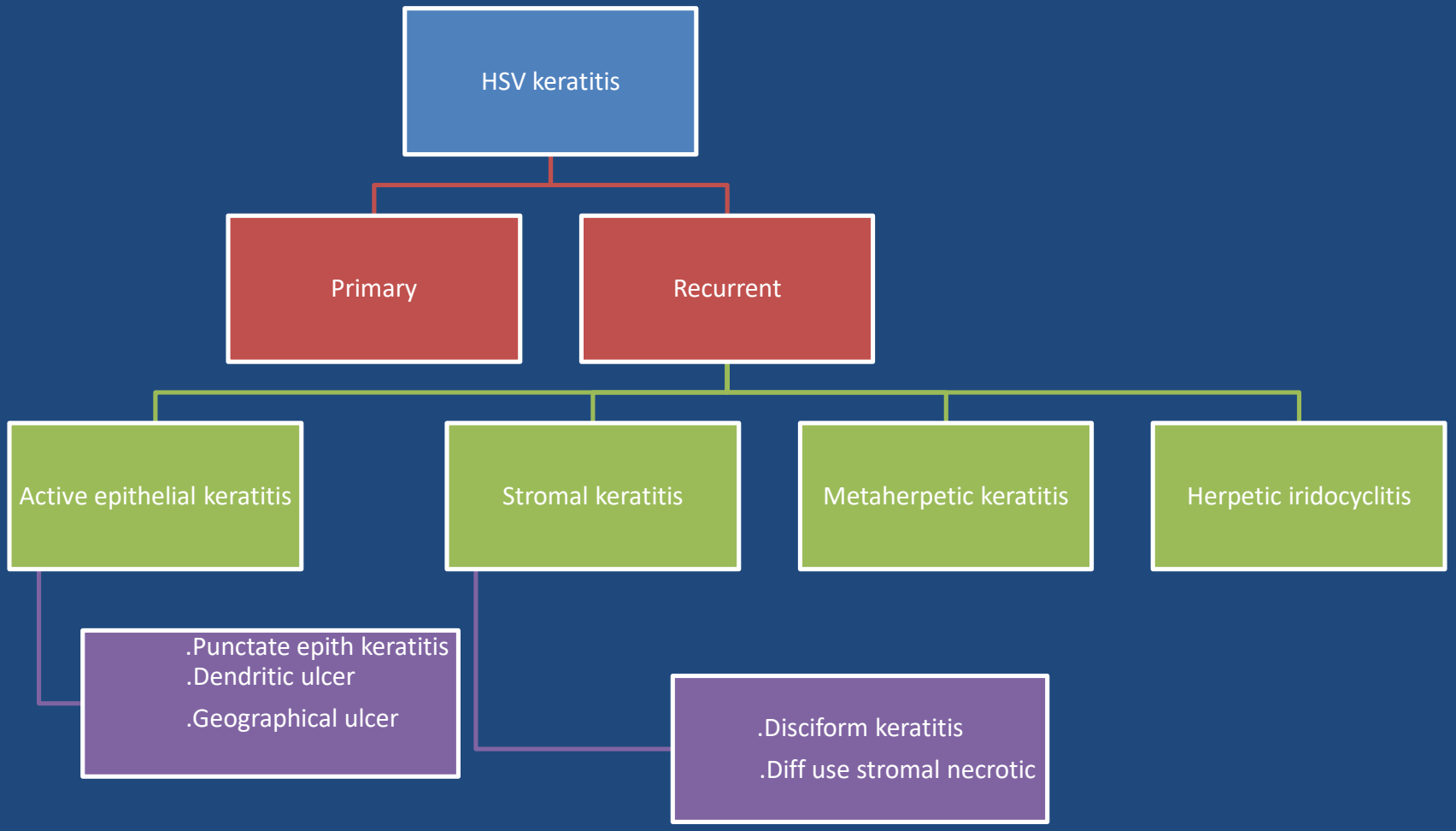
HSV KERATITIS

- DNA virus with natural host man
- Epitheliotropic and neurotropic
- HSV I involves above wait and HSV II involves genitals

HSV KERATITIS

- EPIDEMIOLOGY
  - 5 – 15 YEAR AGE GROUP
  - RECURRENCE
- PATHOGENESIS
  - ENTRY AND REPLICATION
  - ↓
  - RETROGRADE SPREAD ;LATENCY
  - ↓
  - REACTIVATION


HSV keratitis
Primary
Recurrent
Active epithelial keratitis
Stromal keratitis
Metaherpetic keratitis
Herpetic iridocyclitis
.Punctate epith keratitis
.Dendritic ulcer
.Geographical ulcer
.Disciform keratitis
.Diff use stromal necrotic

CLINICAL FEATURES

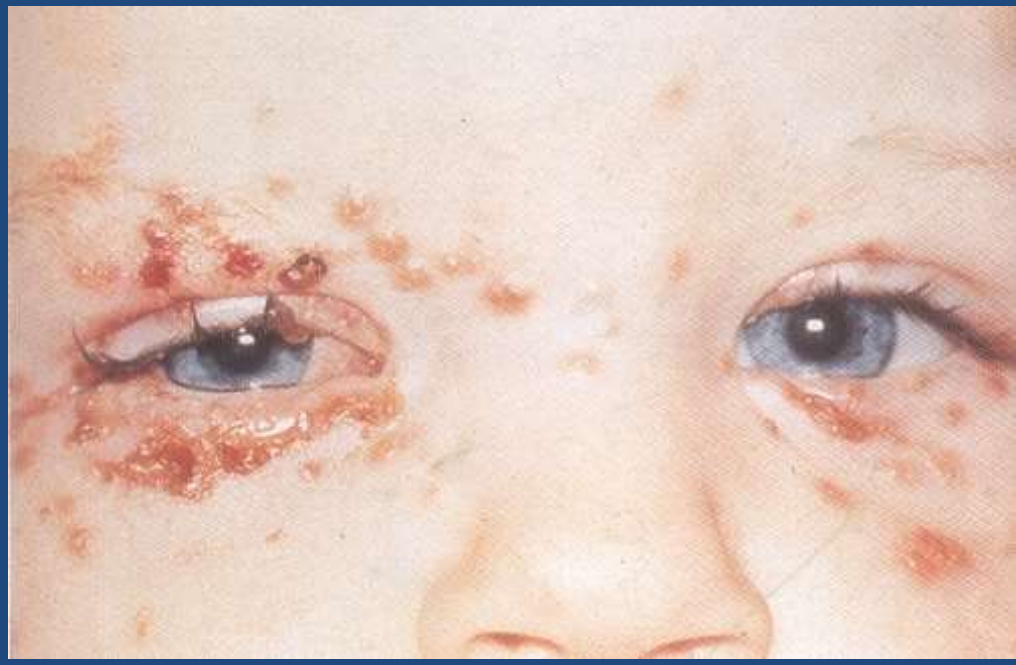
- **PRIMARY OCULAR HERPES**

- PERIORAL/PERIOCU LAR SKIN LESIONS

- FOLLICULAR CONJUNCTIVITIS

- PREAUR. LAP.

- Punctate keratitis and dendric ulcer



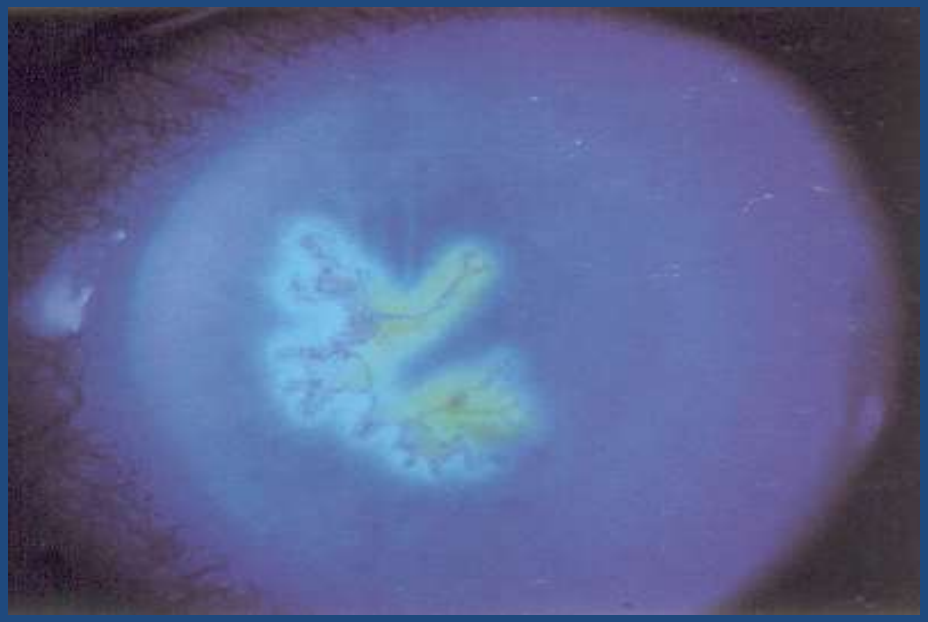
RECURRENT HSV KERATITIS

- Predisposition – Fever , illness, steroids, physical exhausation, immunosupression.

1. Epithelial Keratitis-

i. Punctate epith keratis- lesions resemble like primary herpes with fine or coarse keratitis.

ii. Dendritic ulcer- irregular, ZigZag shape with linear branchings. Floor stains with fluoroscein and virus laden cells in margin take up rose bengal stain. Corneal sensations are decreased



Dendritic ulcer

Geographical ulcer

RECURRENT HSV KERATITIS

iii Geographical ulcer – sometimes dendrites enlarge and coalesce to form large amoeboid ulcer. Steroids hatens its formation.

Symptoms

- Pain, redness, watering and photophobia

Treatment

i. Acyclovir oint 3%- Penentrate stroma well and lesions heals in a week

ii. Ganciclovir (0.15% gel)

iii. Triflurothymidine 1% drops – 2hrly untill heals then 4 tmes for five days.

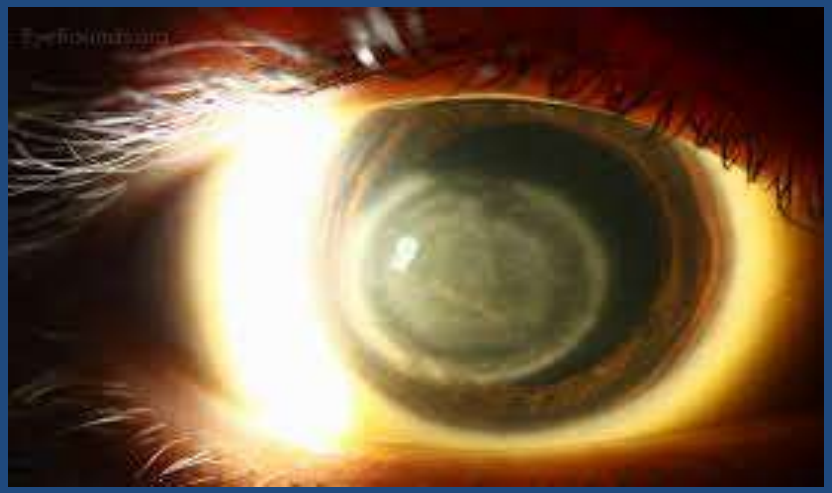
RECURRENT HSV KERATITIS

iv Mechanical debridement

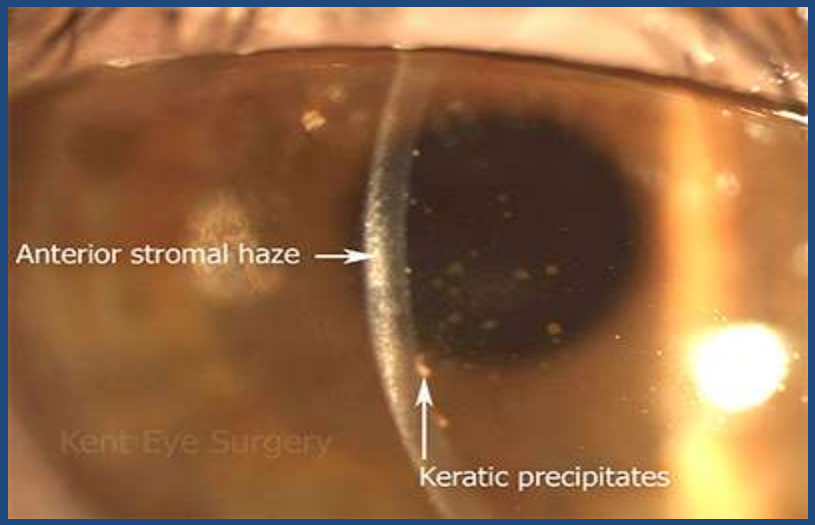
2. Stromal Keratitis

a) Disciform keratitis – delayed hypersenstivity to HSV antigen

- Focal disc shaped edema
- Descemet's folds
- Keratic precipitates
- Corneal sensations diminished
- Wessley's immune ring

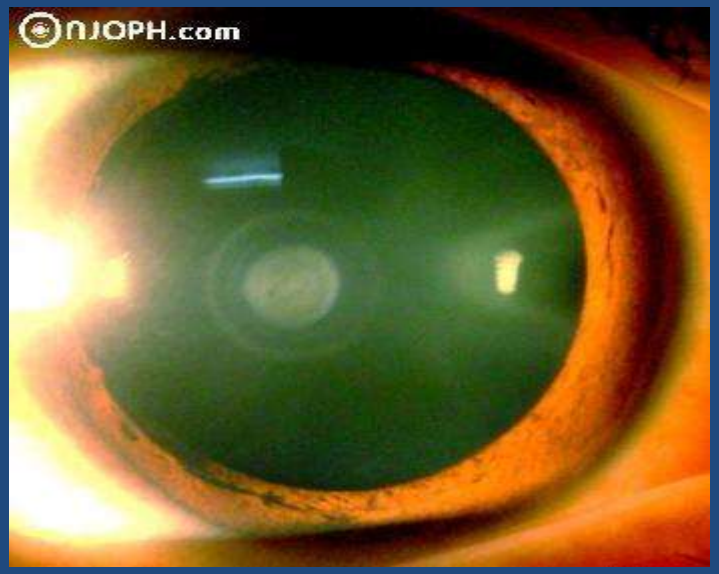


Disciform keratitis



Keratic precipitates

Descemet,’s folds



Wesley’s immune ring

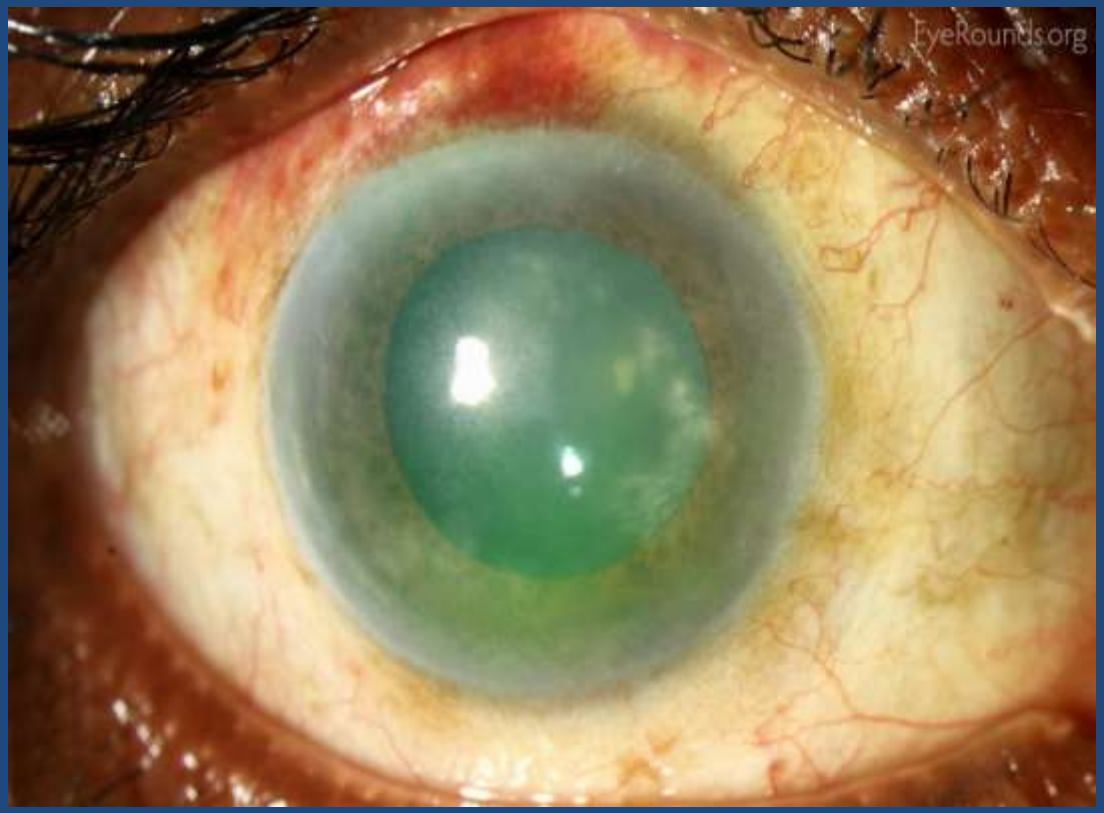
RECURRENT HSV KERATITIS

- Raised IOP with mild uveitis

Treatment- Mild steroids drops under cover of antivirals

b) Diffuse stromal necrotic- interstitial keratitis with active invasion and destruction.

- Necrotic cheesy white infilterates under ulcer or intact epithelium. Mild iritis with KP's
- After several weeks inflamation lead to vascularisation and opacification.



Interstitial keratitis

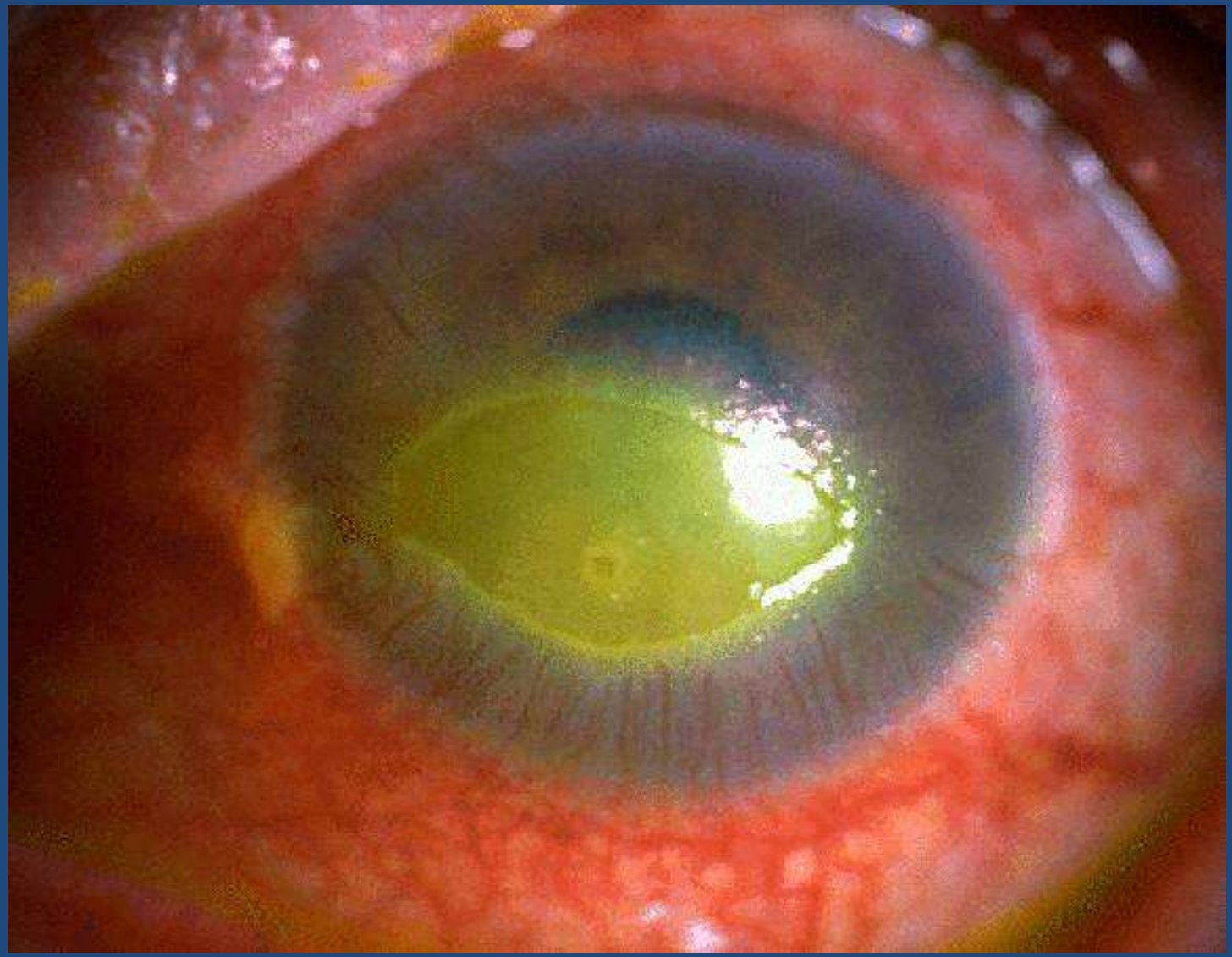
RECURRENT HSV KERATITIS

Treatment – Steroids under cover of antivirals

- Patient may require keratoplasty after healing with risk of recurrence in graft.

3. Metaherpetic keratitis

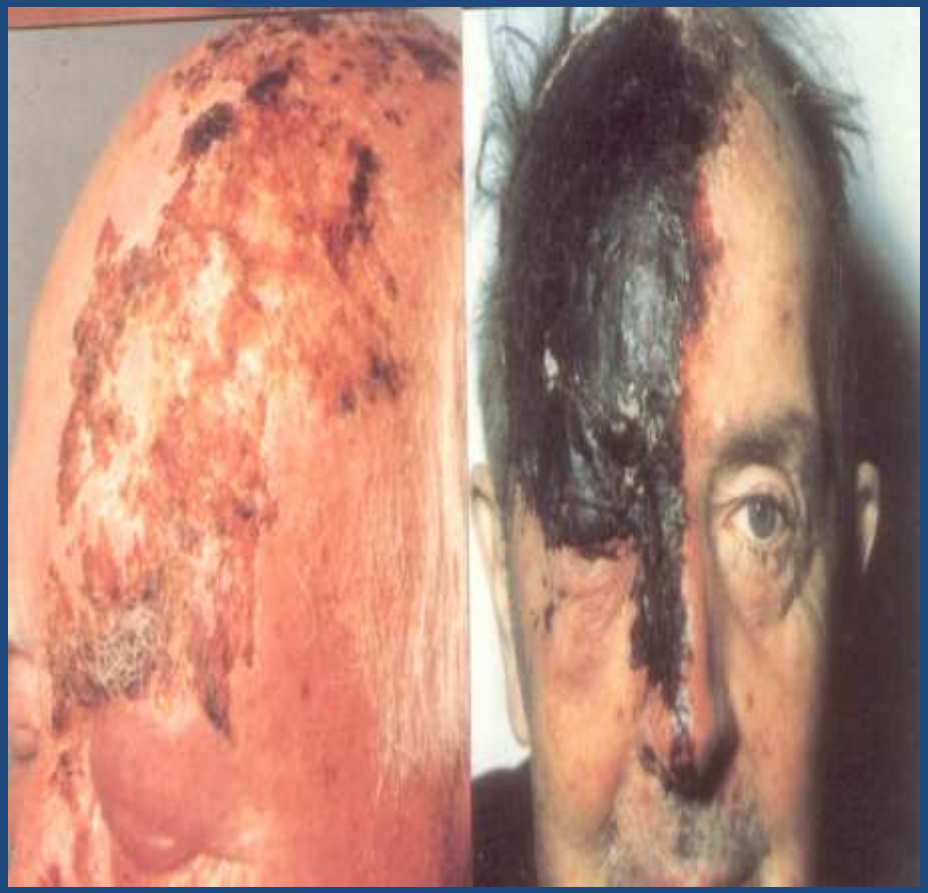
- Not active viral disease but mechanical healing problem.
- Linear or oval defects
- Treatment – lubricants, BCL, Tarsorrhaphy



Metaherpetic keratitis

HERPES ZOSTER OPHTHALMICUS

- Accute infection of gasserian 5th nv ganglionby varicella zoster virus
- DNA virus , neurotrophic and acquired during childhood as chickenpox
- Virus remain dormant and reactivates in elderly or immunodeficient , travel along one of branches of 5th nv



HERPES ZOSTER OPHTHALMICUS

Clinical features

- General features, cutaneous lesions, ocular lesions and neurological complications
- Frontal nv more affected than lacrimal or nasocilliary nv
- 50% cases have ocular complications
- Lesions strictly limited to one side of midline
- Hutchison's sign- ocular involv is frequent if side or tip of nose have vesicles.(nasociliary nv involvement)

HERPES ZOSTER OPHTHALMICUS

- General features- Onset with fever,malaise, pain and severe neuralgia along the nv.
- Cutaneous – redness and edema of skin followed by vesicles which get converted to pustules. These pustules ruptures to ulcers and then pitted scars.This eruptive phase lasts 3ks.
- Post herpetic neuralgia may lasts for years

HERPES ZOSTER OPHTHALMICUS

Ocular lesions

- Conjunctivitis- mucopurulent with hges, follicular conj or necrotizing membranous

Cornea

-Fine/coarse epithelial keratitis

- Microdendritic ulcers
- Numular keratitis
- Disciform keratitis
- Neuroparalytic ulcer
- Exposure keratitis
- Mucous plaque keratitis

HERPES ZOSTER OPHTHALMICUS

- Episcleritis and scleritis
- Iridocyclitis- Haemorrhagic
- Accute retinal necrosis
- Ant segment necrosis and pthisis bulbi
- Secondary glaucoma
- Neurological complications

- 3^{rd}, 4^{th}, 6^{th} and 7^{th} nv palsies
- Optic neuritis and encephalitis rarely

HERPES ZOSTER OPHTHALMICUS

Systemic treatment

- Oral acyclovir 800mg 5times /day for 10 days.
- Decrease pain ,vesicles and reduce keratitis and iritis
- Valaciclovir 500mg TDS x 7days
- Analgesics
- Systemic steroids- neurological complications
- Cimetidine 300mg QID for 2wks for neuralgia
- Amitryptiline for pain and depression.

HERPES ZOSTER OPHTHALMICUS

- Local skin lesions treated with antibiotics and steroid lotions

Ocular lesions

- Topical steroids plus antibiotic, cycloplegics for keratitis, iritis and scleritis. Acyclovir 3%x 2wks.
- Neuroparalytic ulcer – lubricants, BCL Tarsorrhaphy
- Keratoplasty in scarred cornea with high risk

Acanthamoeba keratitis

- Free living amoeba found in soil, water. Exist in trophozoite and cyst form

Mode of infection

a. Contact lens wearer
b. Trauma
c. Opportunistic infection in HSV, Bacterial, bullous and neuroparalytic keratitis

LIFE CYCLE

TROPHOZOITE

↓

MULTIPLICATION (BINARY FISSION)

↓ RARELY

INFECT HUMANS

↓

UNFAVOURABLE CONDIIONS

↓

ENCYSTMENT (RESISTANT AND DORMANT)

↓

RESIST. TO HOST, EXT. TEMP., CHEM DESSICATION

↓

FAVOURABLE CONDITIONS (LIQ. BACT.) NUTRIENTS,

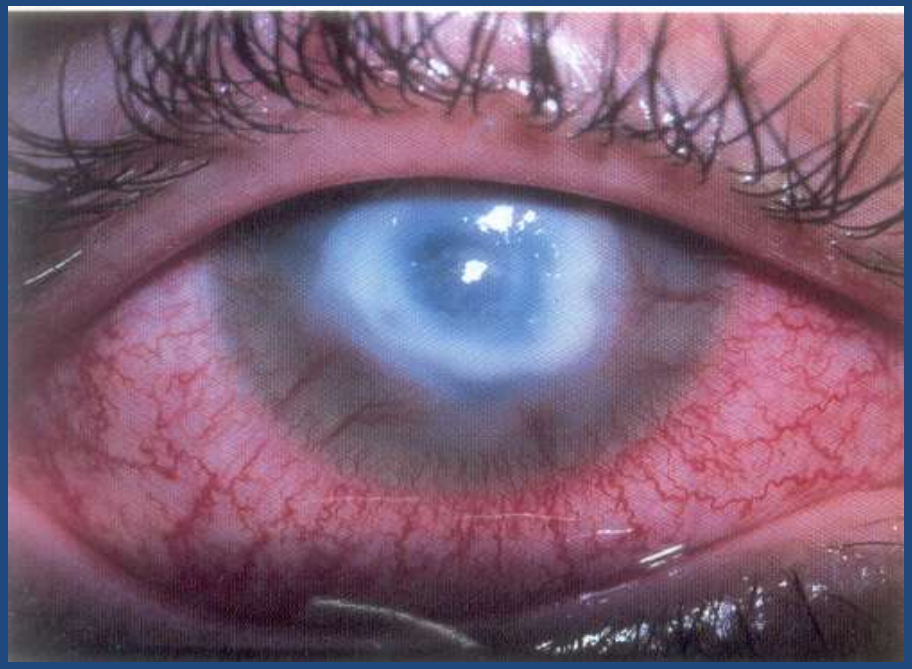
↓

EXCYSTMENT.

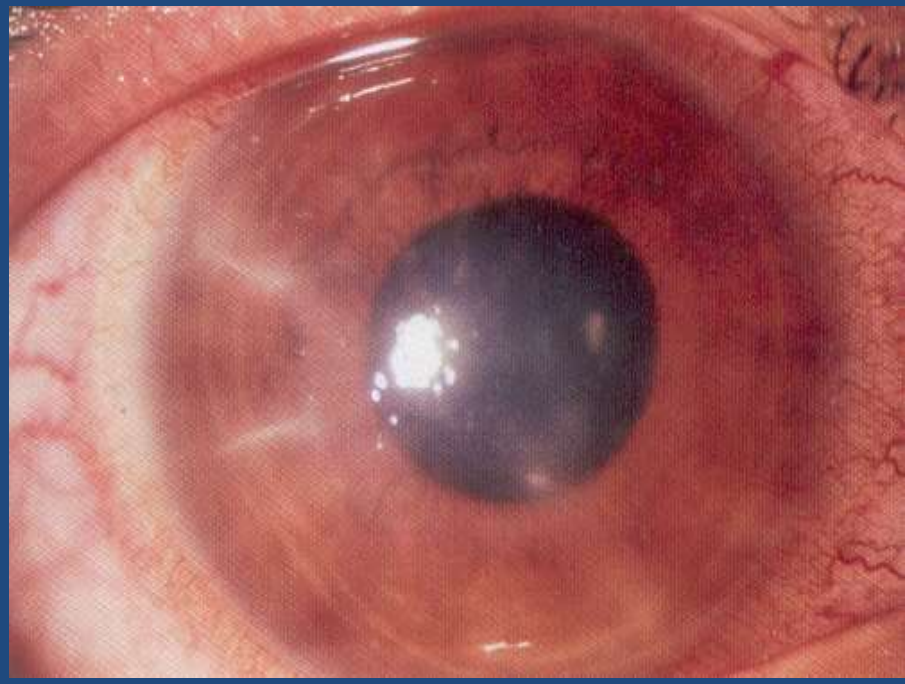
Acanthamoeba keratitis

Clinical features

- Initial lesions - limbitis, coarse opaque streaks, epithelial and subepithelial opacities and radial keratoneuritis.
- Advance cases- central or paracentral ring shaped lesions with stromal infilt and epithelial defect.
- Hypopyon may be present



Ring ulcer



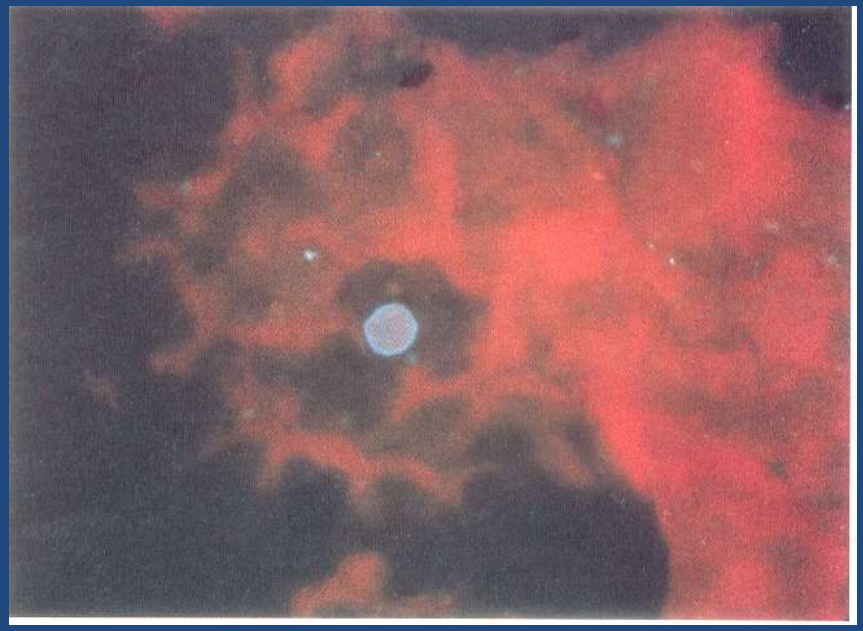
Radial neurokeratitis

Acanthamoeba Diagnosis

- Clinical signs and history
- Stains
  - Gram stain
  - Giemsa stain
  - HE stain
  - Trichrome
  - ***Calcofluor white***

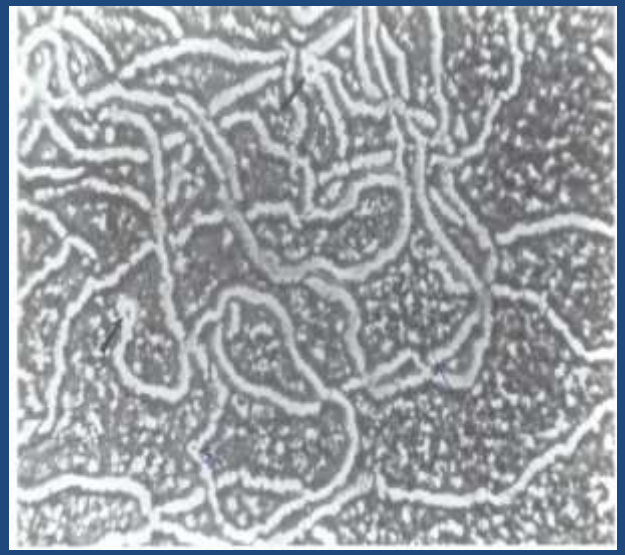
Acanthamoeba

- Calcofluor white stain
  - Does not stain trophozoites
  - Cysts appear as apple green, 10-20µ in diameter



Acanthamoeba

- Culture
  - Blood agar (horse blood preferred)
  - Non-nutrient agar with live or dead *E coli*
  - Incubated at 30 degree temp.
  - Detection of characteristic depression on media - trail
  - One serial culture is must to confirm amoebic isolation
  - Pseudotrails seen with macrophages and PMN leukocytes



Management of Acanthamoeba keratitis

- *Commonly used drugs*
  - **Diamidine derivatives:(amoebicidal)**
    - *Propamidine isethionate 0.1% (brolene sol)*
    - *Pentamidine isethionate 0.1% (pentam 300)*
  - **Aminoglycoside**
    - *Neomycin and parmomycin*
  - **Antifungal**
    - *Oral Ketaconazole(200-600mg/day) ,Itraconazole*
    - *Micanazole and clotrimazole 1% topical*
  - **Others**
    - *Polyhexamethylene biguanide 0.02% (cysticidal)*

Mooren's ulcer

- Chronic serpengious, rodent ulcer is a severe peripheral ulcerative keratitis

Etiology

- Idiopathic degenerative condition
- Ischaemic necrosis due to vasculitis of limbal vessels
- Due to enz collagenase and proteoglyconase produced by conjunctiva
- Autoimmune reaction to corneal epithelium

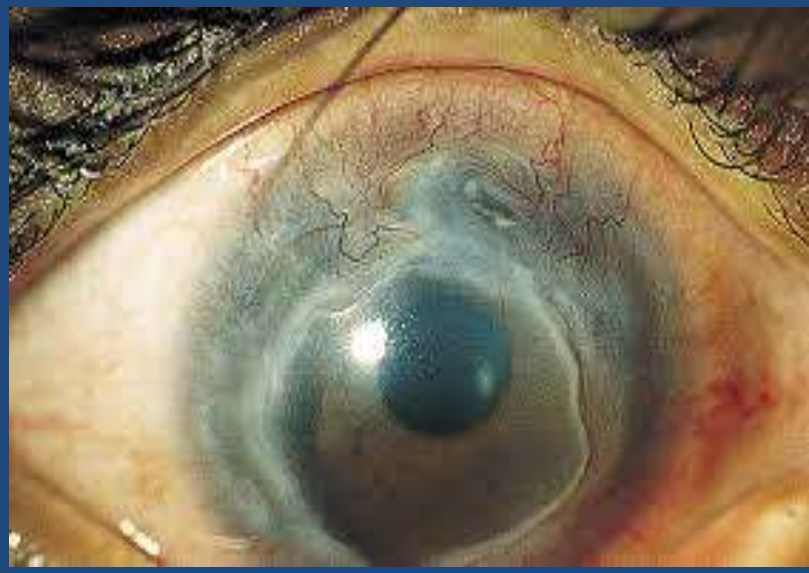
Mooren's ulcer

Cinical forms

A. **Benign -**unilateral affects elderly and slow progression.
B. **Virulent** – bilateral , progressive and in young. High risk of scleral involv and perforation.

Symptoms

- Supf ulcer start as infilt in periphery, coalasce to form a shallow furrow which progress towards circumferential and centre undermining the epithelium. Simultaneous healing and vascularisation behind lead to thin scarred cornea.
- Rarely perforates



Mooren’s ulcer

Mooren's ulcer

Treatment

- Topical steroids
- Systemic immunosuppression with steroids and cyclosporin or other agents.
- BCL
- Tectonic keratoplasty with poor results.

Interstitial keratitis

- Inflammation of stroma without epithelial involvement

Causes

- Congenital syphilis
- Tuberculosis
- Cogan's syndrome
- Acquired syphilis
- Malaria
- Leprosy
- Sarcoidosis

Interstitial keratitis

- Syphilitic is 90% congenital with bilateral involvement and manifest 5-15 yrs age
- Primary sensitization by T pallidium occur during foetal life
- Active infl is triggered by a antigen , injury or surgery

Clinical features

- Hutchison's triad- interstitial keratitis, vestibular deafness and Hutchison's teeth

Interstitial keratitis

1. Initial progressive stage- Asoc with pain, congestion , lacrimation and photophobia.
- Anterior uveitis with KP's and stromal edema , gives ground glass appearance to cornea. It lasts 2wks .
2. Florid stage- Deep vascularisation with brush like vs (salmon patch). Moderate vasc from limbal conj vs. This lasts 2 months.
3. Regression- infl decrease with corneal clearing from periphery leaving opacities and ghost vs .This lasts 1-2 yrs.

- FOR CLARIFICATIONS CONTACT DR. SANJAY KAI ON 1ST DEC. IN SEMINAR ROOM OF EYE DEPTT BETWEEN 1 TO 2 PM.