

The cornea and the herpes virus

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Herpes Viruses

- HSV-1, 2
 - Oral and genital herpes
- Varicella Zoster
 - Chicken pox and shingles
- Epstein Barr
 - Glandular fever
- CMV

Infectious epithelial keratitis

Neurotrophic keratopathy

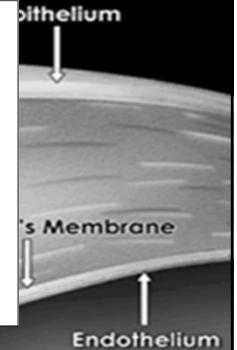
- Punctate erosions
- Neurotrophic ulcer

Stromal keratitis

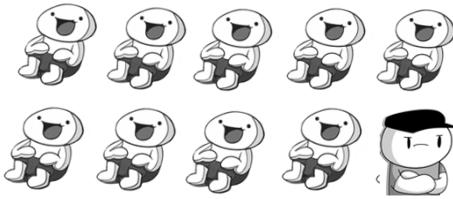
- Necrotising stromal keratitis
- Immune stromal keratitis (most common)

Endothelitis

Keratouveitis



Herpes Viruses



90% infected

Latent virus in most

- Bacterial
 - Syphilis
 - Lyme
 - Brucellosis
 - ICK
- Mycobacteria
 - TB
 - Leprosy
 - Atypical mycobacterium
- Viral
 - HSK
 - HZV
 - EBV and adenovirus
 - Measles and mumps
- Phlyctenular keratitis

- Chlamydia
 - LGV
- Parasitic
 - Acanthamoeba
 - Onchocerciasis
 - Microsporidia
 - Leismania
 - Cysticercosis
 - Trypanosomiasis
- Non-infectious systemic
 - Cogans
 - Sarcoid
 - Lymphoma
 - Kaposi's sarcoma
- Nummular opacities
- CL related

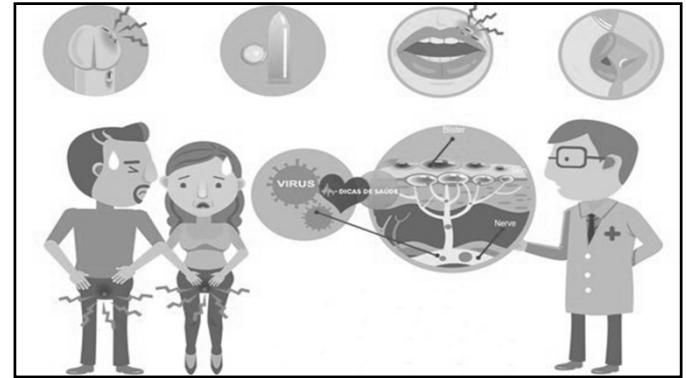
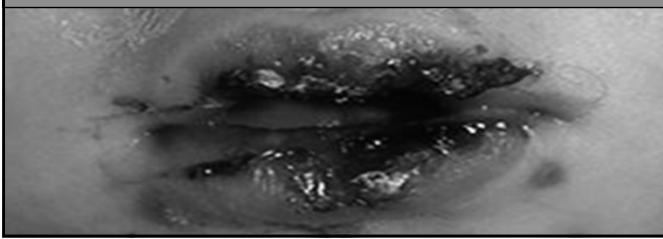
Actively replicating organisms in red

Herpes simplex keratitis

- HSV most common virus acquired by humans

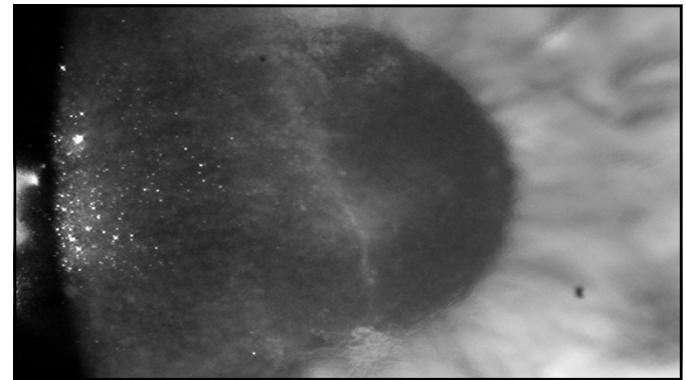
- IgG
 - > 70% before 20 yrs
 - 95% after 70 yrs

- Clinical infection in <1% with the virus



HSV type

- HSV type 1+2: antigenically related may coinfect nerve ganglion
- **HSV-1:** more common above waist
- **HSV-2:** below waist less susceptible to valacyclovir/acyclovir than HSV-1



Recurrent HSK

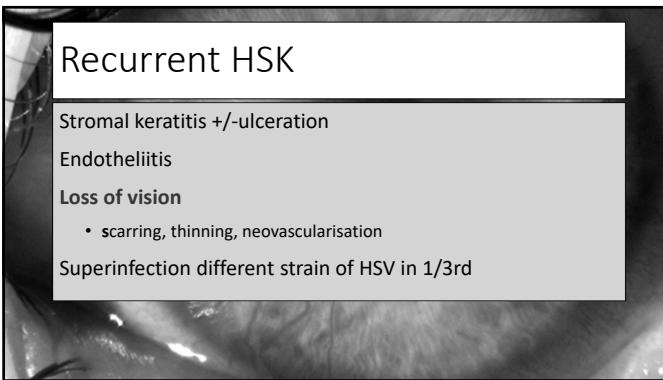
Stromal keratitis +/-ulceration

Endotheliitis

Loss of vision

- scarring, thinning, neovascularisation

Superinfection different strain of HSV in 1/3rd

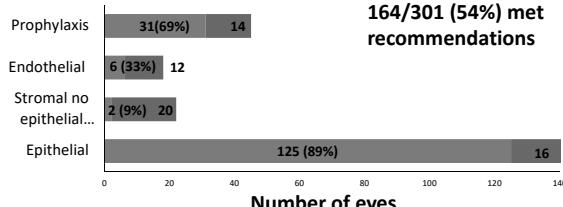


HSV in children

- Bilateral
 - 10-20% (mean 16%)
- Recurrent
 - 50% within 1 - 2 years
- More severe
 - Scarring more likely



Adherence to treatment recommendations



Cabrera-Aguas M, Robaei D, McCluskey P, Watson SL. Clin Exp Ophthalmol 201

Topical vs oral acyclovir

- Systemic ACV in addition to topical antivirals
 - no benefit clinically evident effect in adults
 - Children: beneficial as application of topical medication difficult
 - **Systemic better than topical for prophylaxis**
 - Action on latent HSV in ganglion



Aciclovir & Valaciclovir

- Valaciclovir PO rapidly converted to acyclovir
 - Bioavailability 3 to 5 times greater than oral aciclovir
 - Safety profile the same
 - Valacicvoir 500mg BD = Aciclovir 200mg 5 X daily

Ganciclovir gel 0.15%

- Similar to occ Aciclovir
 - Epithelial keratitis
 - Adverse events less
 - Prophylaxis
 - Possible role post-PK
 - Long term data lacking

Everyone knows your "cold sore" is really a burn from a crack pipe.

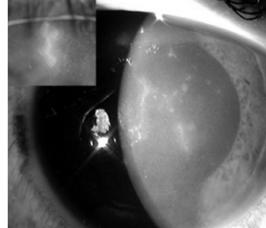


Cochrane review

Herpes Zoster Keratitis

Acute keratitis

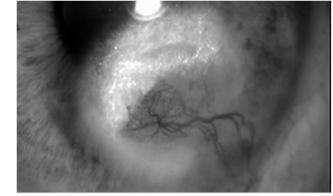
- Punctate keratitis
- Pseudodendrites
 - Stuck on
 - Stain poorly
 - Lack terminal bulbs
 - Do not branch dichotomously
- Nummular keratitis



AAO Focal points

Chronic relapsing keratitis

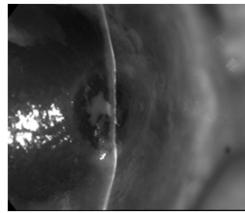
- Filamentary keratitis
 - Difficult to treat
- Interstitial keratitis
- Disciform keratitis



Up to 25%

Long-term sequelae

- Neurotrophic ulcers
 - More likely to perforate
- Corneal haze + epithelial irregularity
- Ocular surface disease



Management

- Oral antivirals within 72 hours
 - 2 x the dose for HSK
- Topical steroids with slow taper
- Treat OSD
- Little evidence for prophylactic antivirals

Zoster Eye Disease Study Group

Clinical translation of evidence for use of anti-virals in the management of Herpes Zoster Ophthalmicus

The Zoster Eye Disease Study Group is a collaborative group of researchers and clinicians from The University of Sydney, Westmead Institute for Medical Research, and the Save Sight Institute.

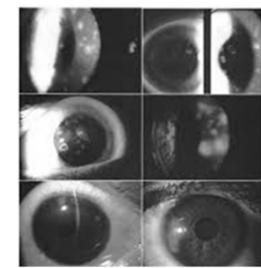
RESEARCH | TEACHING | PATIENT CARE

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Epstein Barr Virus keratitis

EBV Keratitis

- Children and adolescents
- Interstitial keratitis
- Difficult to diagnose
 - Serology, PCR negative
- Topical steroids

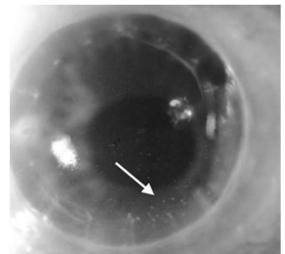


Palay et al. JAMA Ophthalmology. 1993
 Matoba et al. Ophthalmology. 1986

CMV keratitis

CMV keratitis

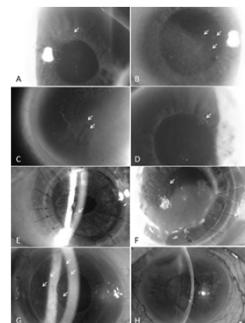
- Endotheliitis
- Graft rejection
- In the setting of AIDS
 - Epitheliitis
 - Elevated, opaque, branching, non-ulcerative
 - Stromal keratitis



Kumar, Mehta. Curr Ophthalmol Reports 2019

CMV endotheliitis

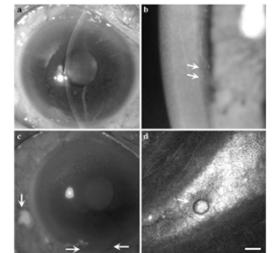
- Linear kps and 'coin-shaped' lesions
- Oedema
- Anterior uveitis with ↑ IOP
- Think of the diagnosis !!!
 - Poor outcomes with delay



Faith et al. Curr Opin Ophthalmol. 2018
 Koizumi et al. BJO 2015

CMV endotheliitis

- Clinical diagnosis
- AC tap
 - Viral DNA + local antibody
- Topical steroids
- PO valganciclovir 900 mg BD for 6 weeks then daily 6 weeks



Yokogawa H. Japan J Ophthalmol 2012

Glitter is the herpes of crafting.
 It spreads everywhere and is
 impossible to
 get rid of.



Thank you

Maria Cabrera-Aguas
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 Dr Richard Symes
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