ABCs of HSV and VZV

Deepinder K. Dhaliwal, MD, L.Ac

Professor, University of Pittsburgh School of Medicine

Director, Cornea and External Disease Service

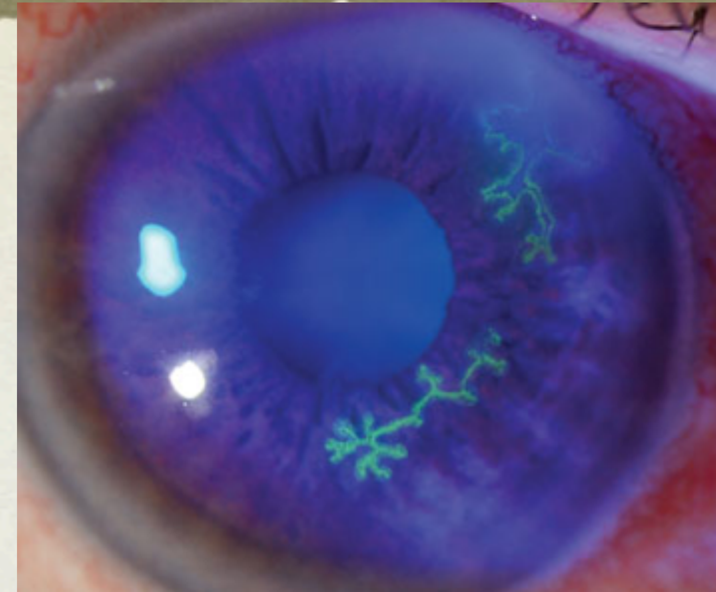
Director, Refractive Surgery Service

Director and Founder, Center for Integrative Eye Care

Associate Director, Campbell Ocular Microbiology Laboratory

Medical Director, Refractive Laser Center,

University of Pittsburgh Medical Center



Disclosures

Consultant: Bausch & Lomb, Novabay

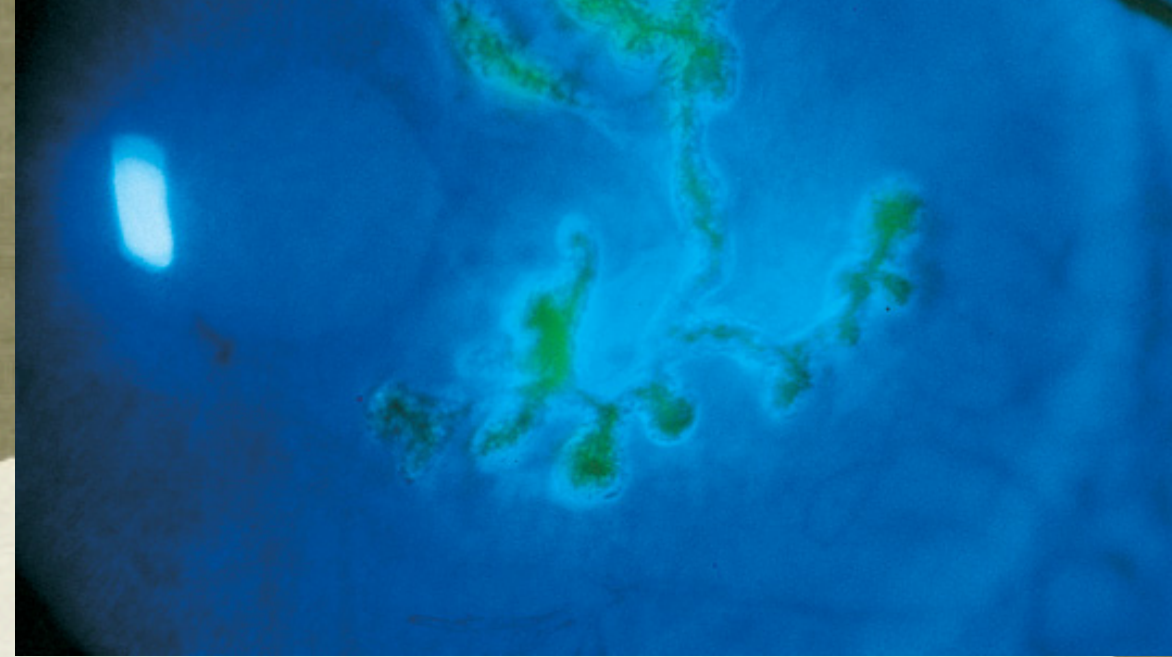
Research/Speaker: Sightlife, Staar Surgical, Oasis, Ocular Therapeutix, Imprimis

Trainer: AMO VISX and Intralase Lasers

HERPES VIRUS:

Simplex vs Zoster

Herpes simplex

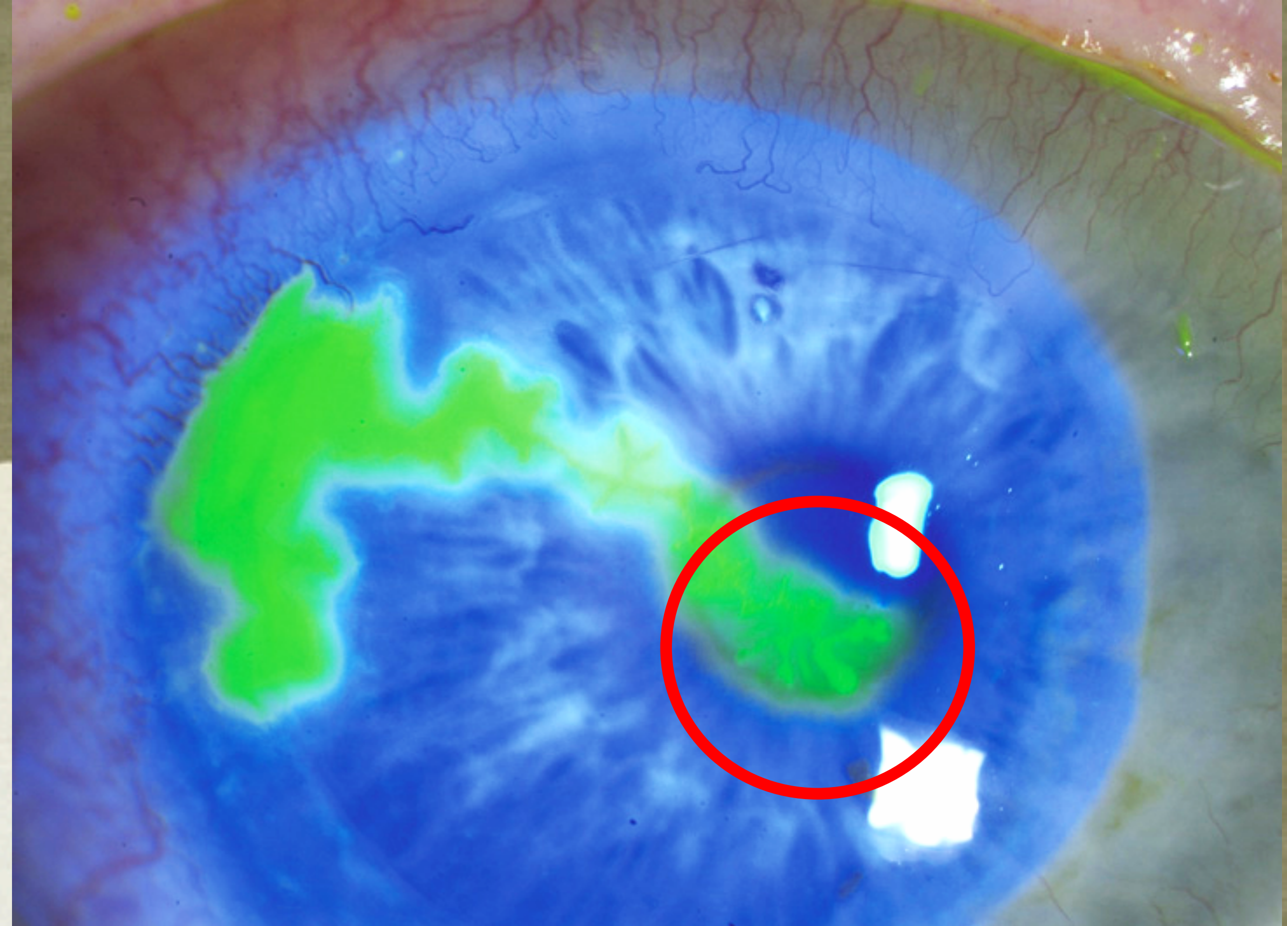


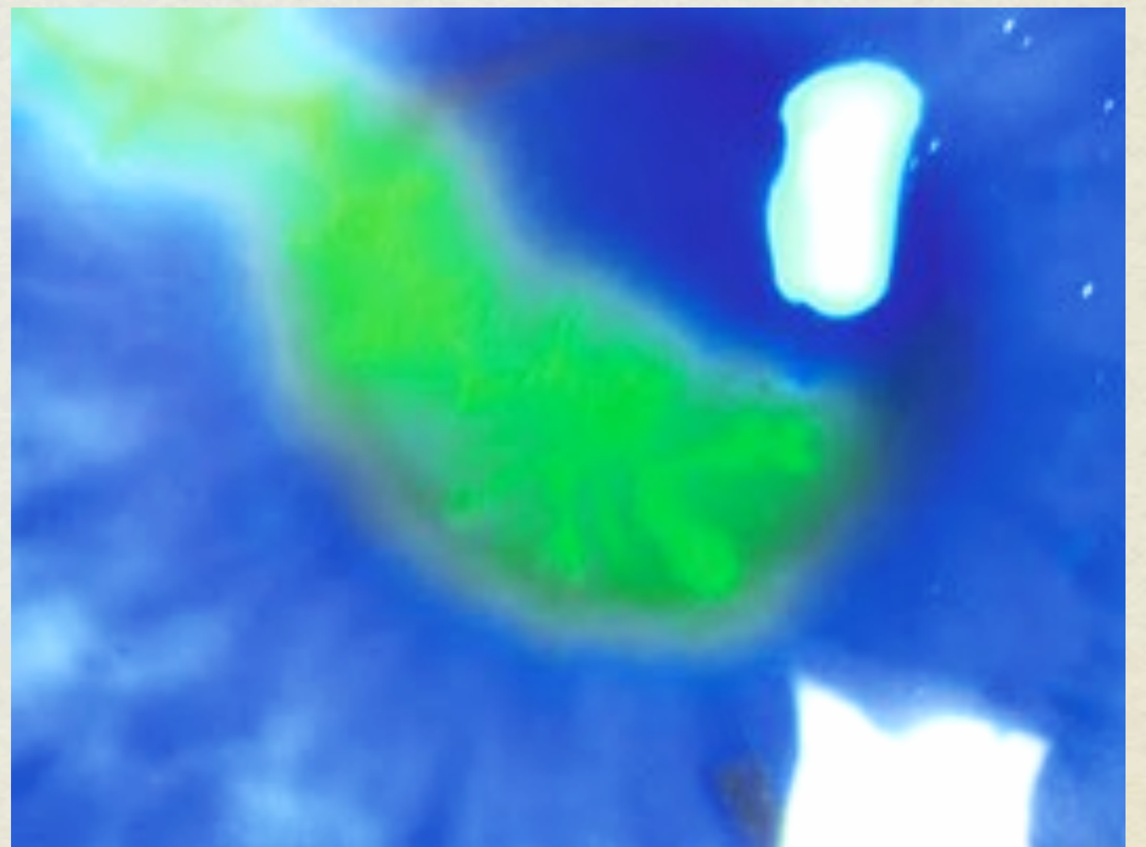
- HSV keratitis is the *most common corneal infection in the US* and is the *number one cause of corneal and infectious blindness*
- Approximately 500,000 people in the US with HSV-related ocular disease
    - 20,000 new cases, 28,000 reactivations each year
- Diagnosis: mainly clinical, laboratory can be helpful if unclear

Herpes simplex

- The virus spreads from site of infection to neuronal cell bodies where in can remain dormant and periodically reactivate
- *Over age 60, nearly 100% people in the US harbor HSV*
- Triggers for reactivation are stress (even surgical), excimer laser, sunlight, fever, among others.
- *Steroids promote replication of HSV*

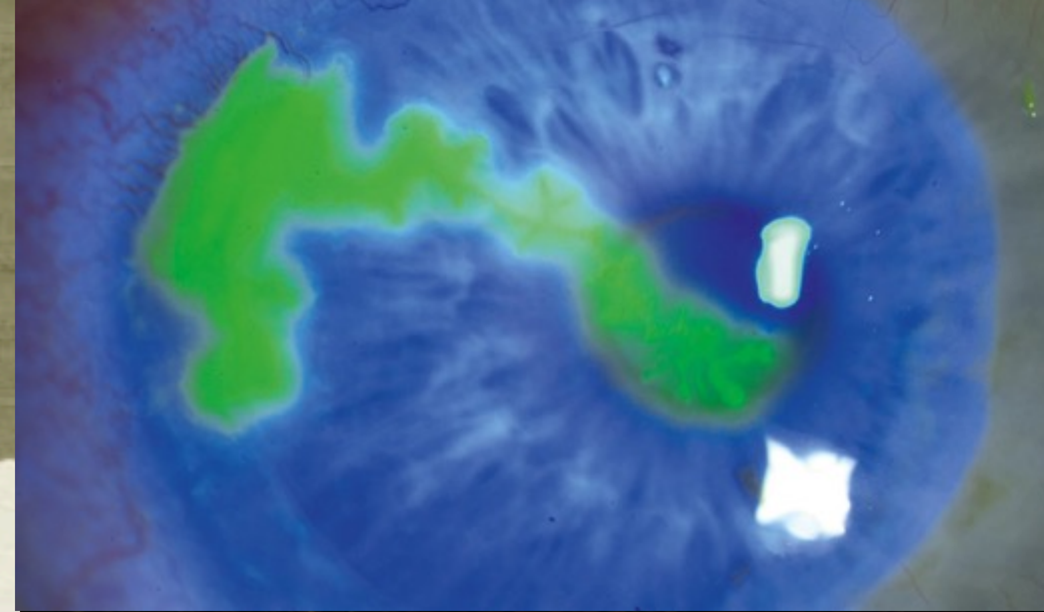
- 23 y/o woman with 2 weeks of irritation OD, non CL wearer
- No history of trauma
- Is this an abrasion?
- HSV
- Treatment:
  - Steroids? Viroptic? NEITHER OF THESE?

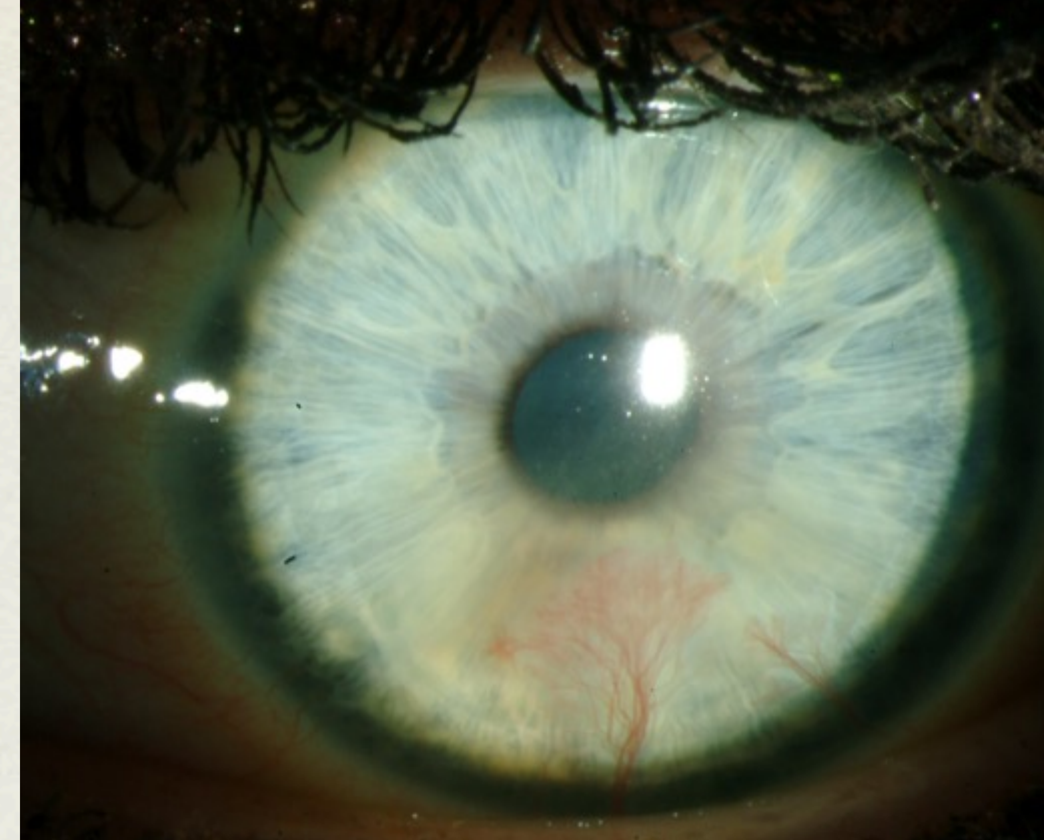


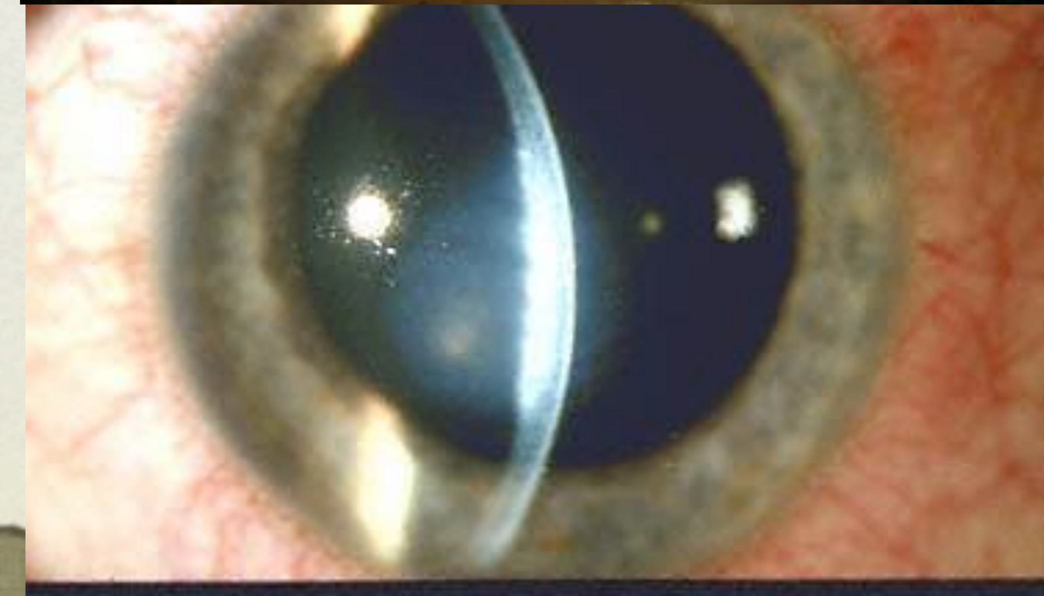


Herpes simplex: types

- **Epithelial** keratitis: + live virus, classic dendrite with terminal bulbs or geographic ulcer
- **Stromal** keratitis: NO live virus, stromal inflammation, +/- vascularization, intact epithelium
  - ✓ Necrotizing form: + live virus (epithelial defect and dense infiltrate). Rare.
- **Disciform** keratitis: NO live virus





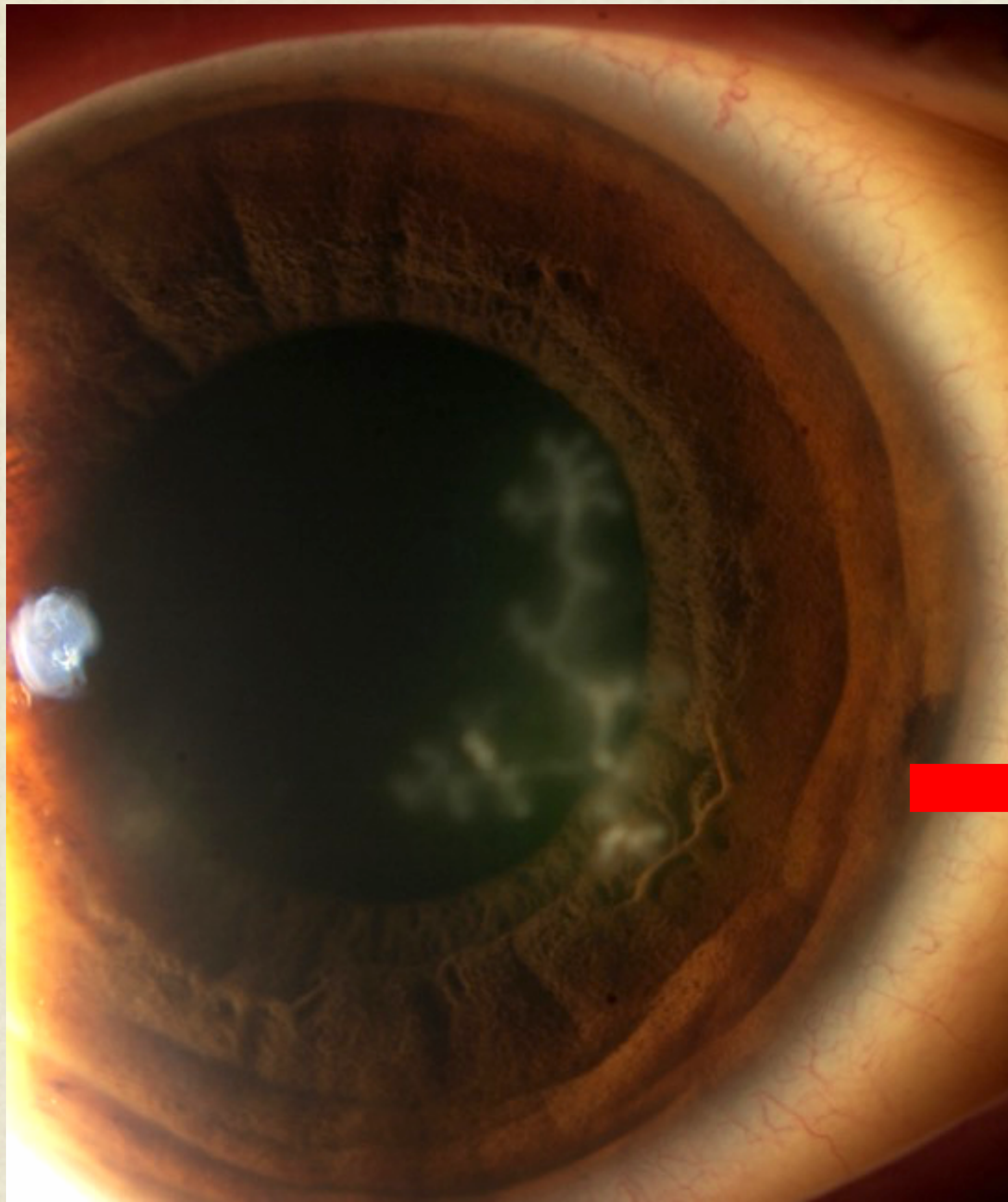


Herpes simplex: treatment

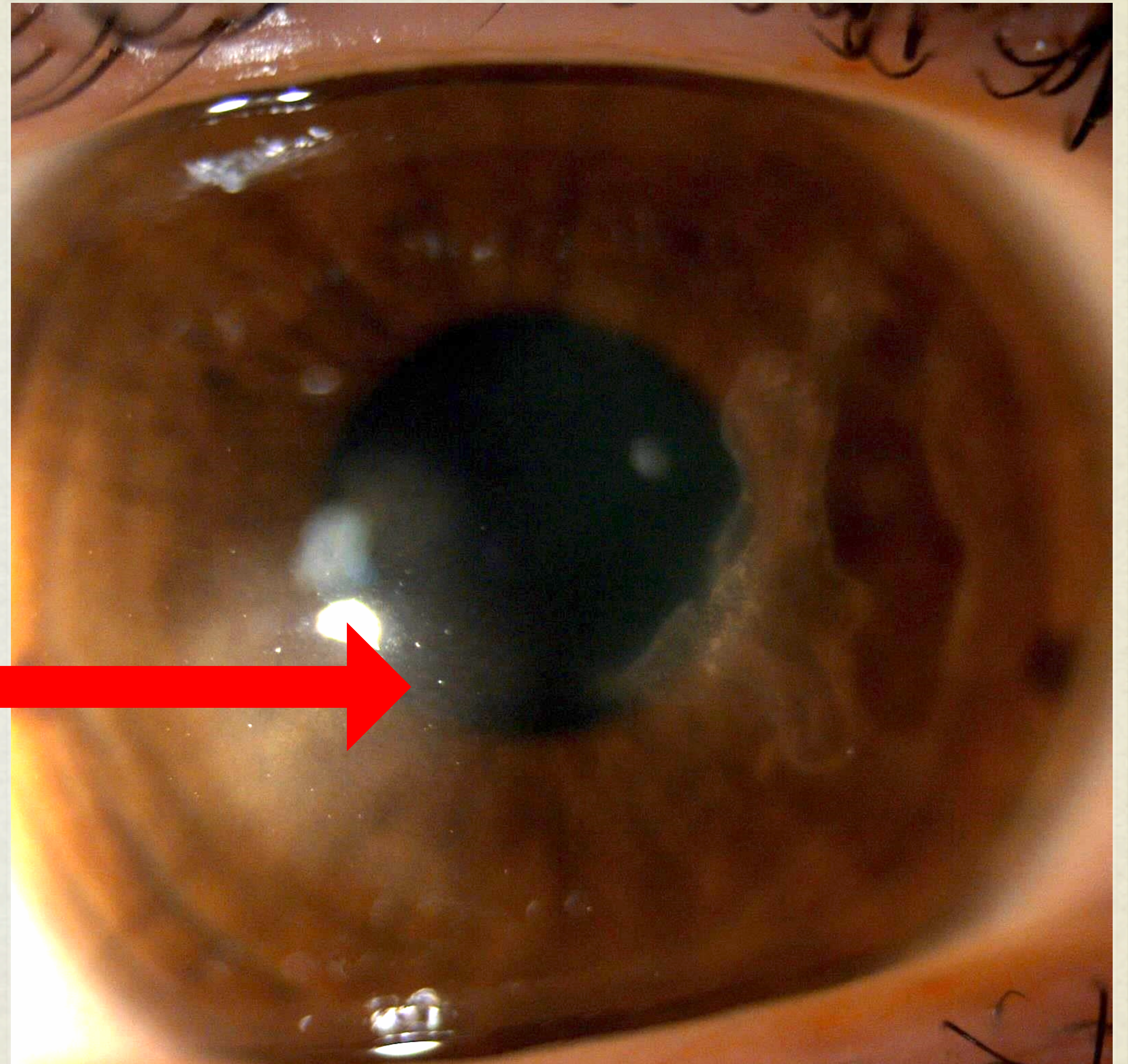
EPITHELIAL keratitis

- NEVER use steroids in the presence of live virus
- Avoid trifluridine 1% (Viroptic) since it is toxic
- Ganciclovir gel 0.15% (Zirgan) is better tolerated. Dosage is 5x/day until resolution of the epithelial lesions, then 3x/day for another week
- *We prefer oral agents*. They are well tolerated and very effective: ACV 400mg po 5x/day or Valacylovir 500mg po TID for 3 weeks, then once daily for long-term suppression

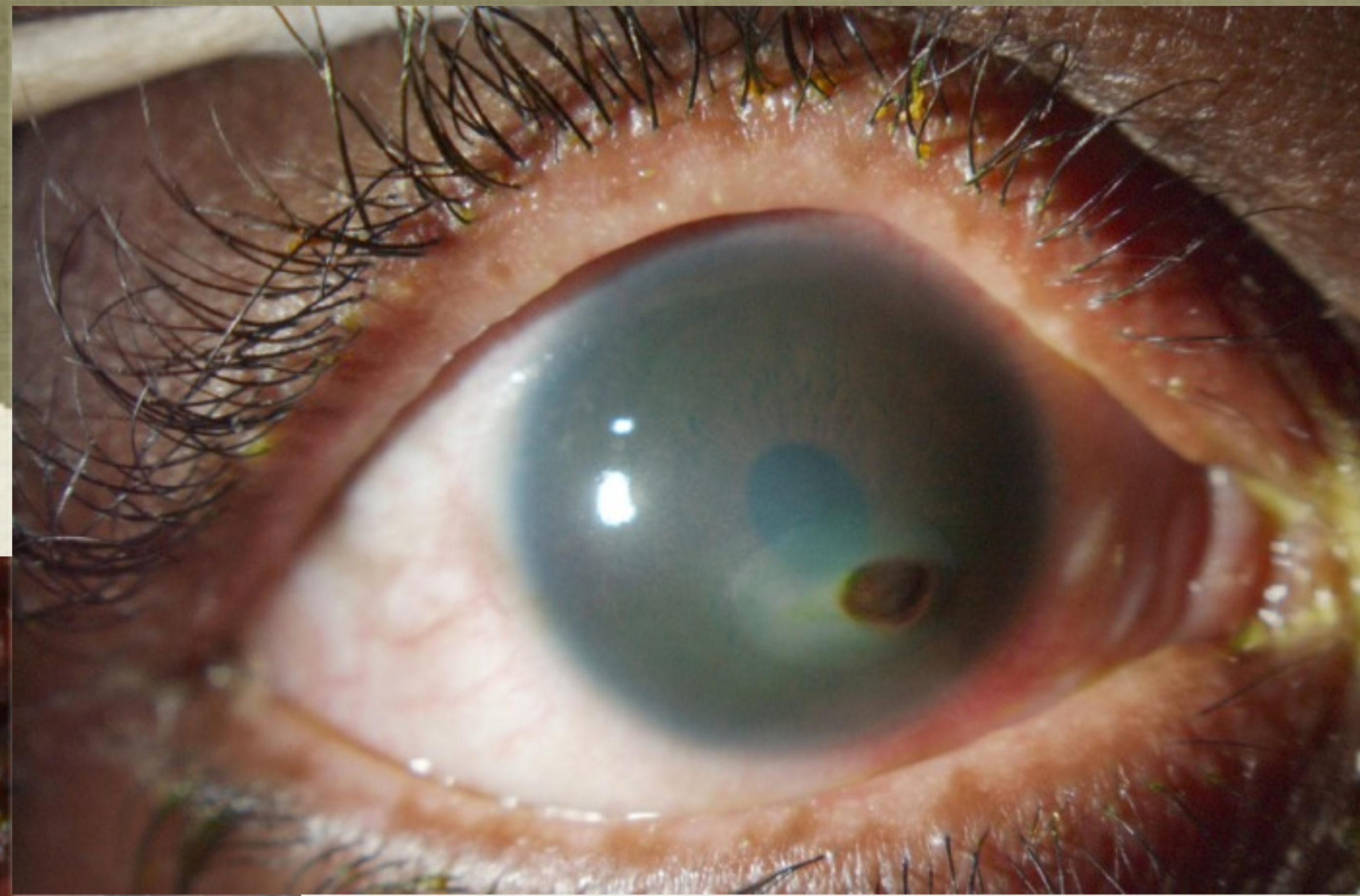
Dendrite

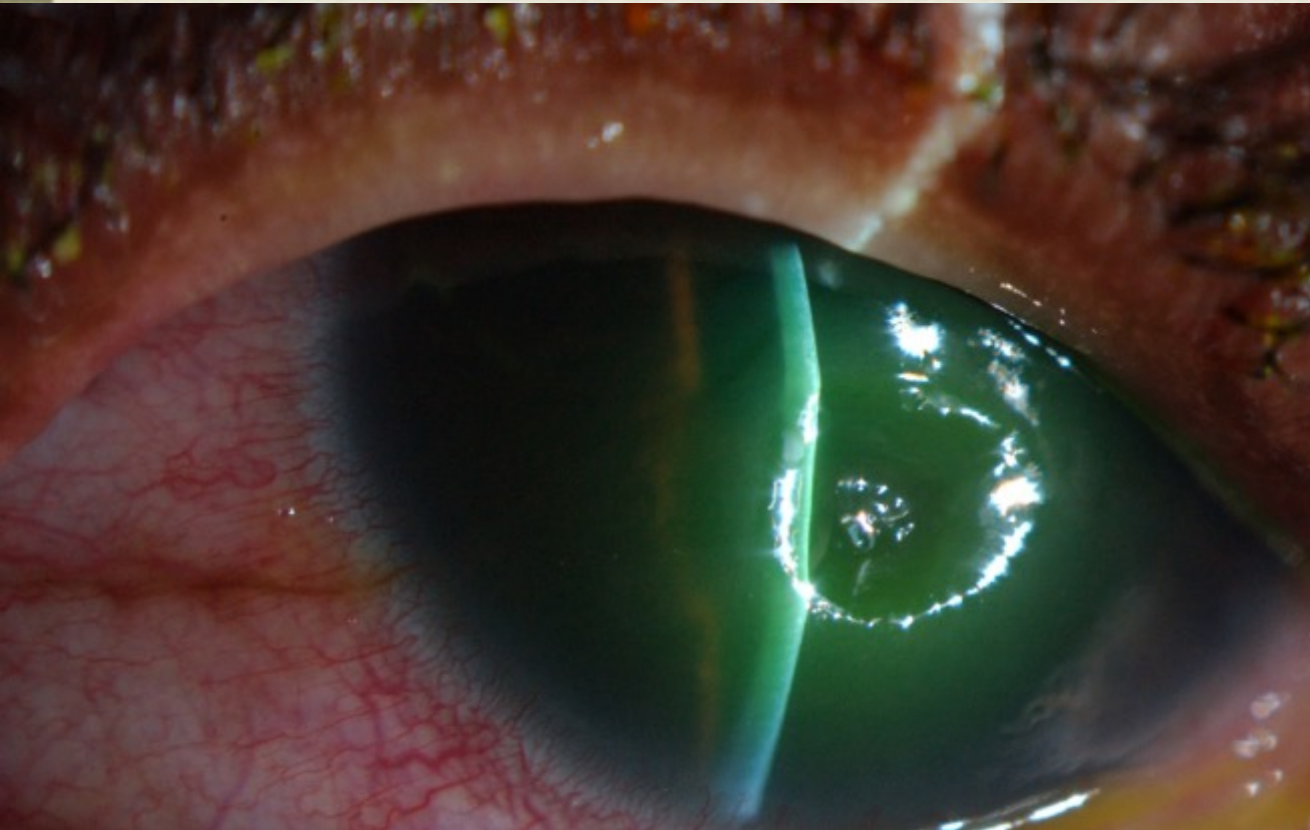


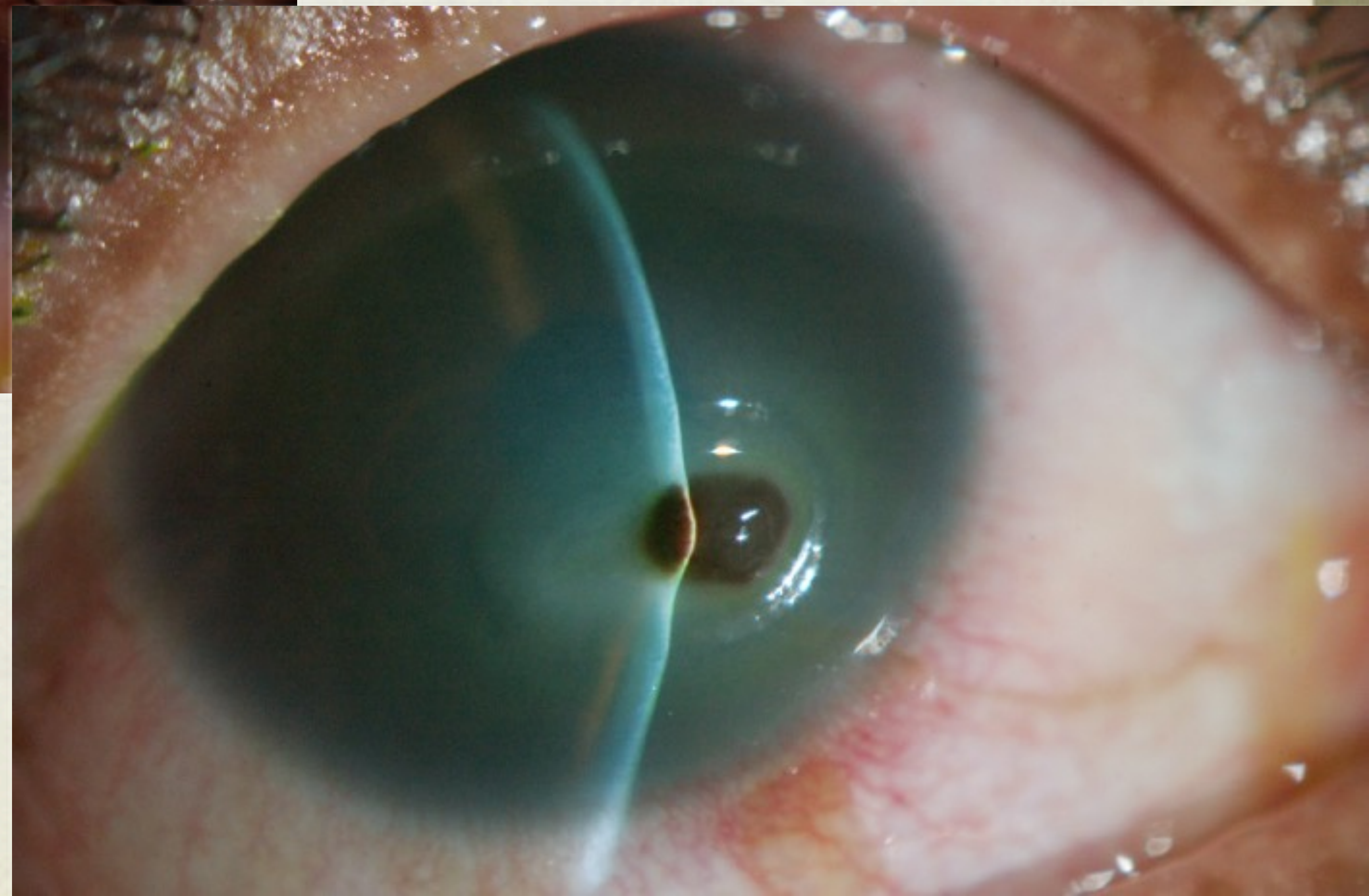
Scar



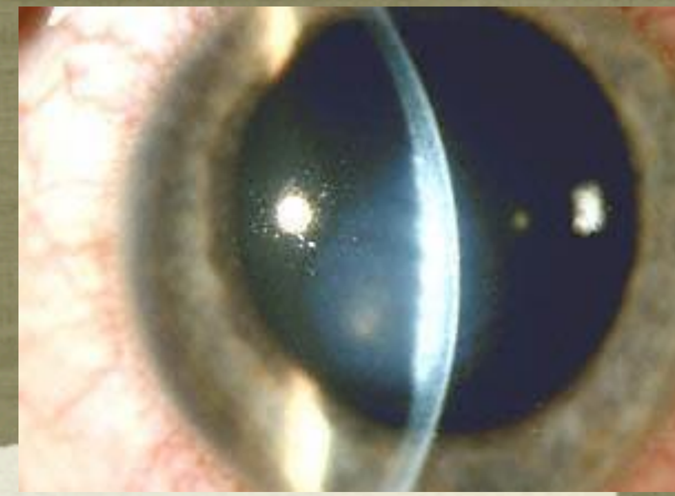
Steroids + HSV



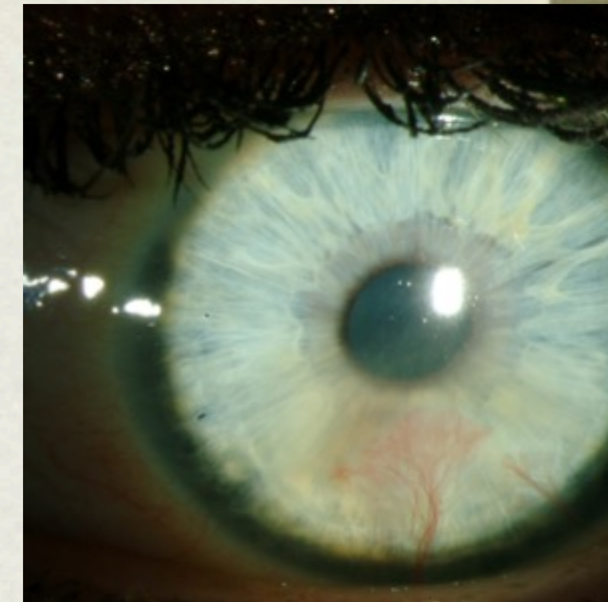




Herpes simplex: treatment

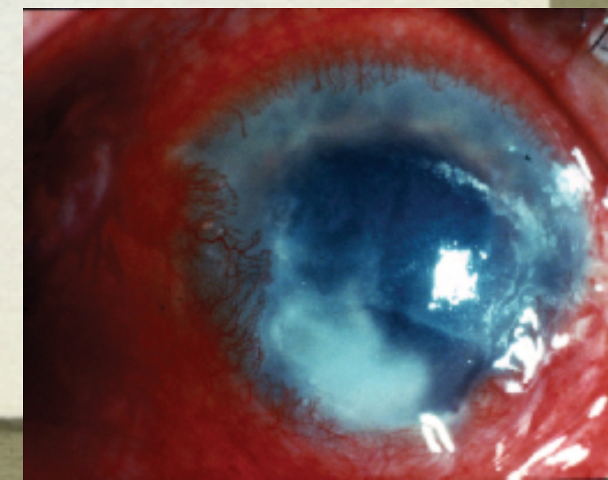


IMMUNE STROMAL and DISCIFORM keratitis



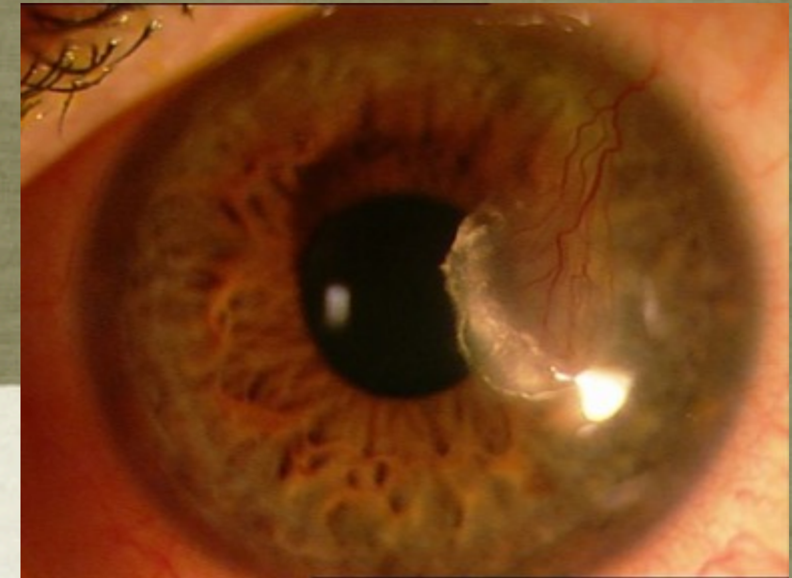
- **Steroids** (prednisolone acetate 1%) qid along with **antiviral cover** using oral agents (acyclovir or valacylovir)
- These patients may need LONG term treatment (one drop steroid, one antiviral dose)

NECROTIZING STROMAL keratitis



- Need full antiviral treatment, and then steroids
- Be careful. These corneas can perforate.

HSV and cataract surgery

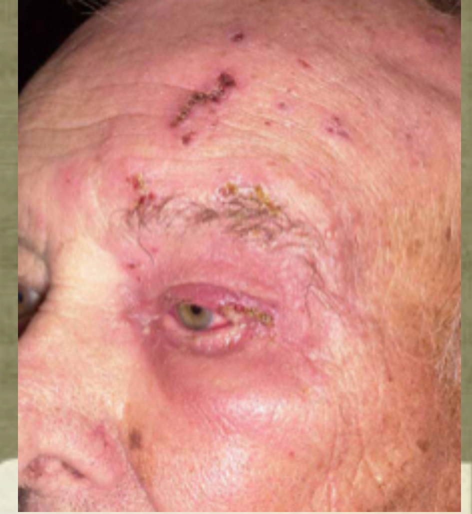


- If scar causing *irregular* astigmatism, avoid toric and multifocal IOLs
- Ask about history of HSV, cold sores
- If suspicious, oral antiviral prophylaxis is indicated
- Acyclovir 800mg po TID or valacyclovir 500mg po BID starting 3 days prior. Continue until pt off topical steroids

Agent	Treatment Dose	Prophylactic Dose
HERPES SIMPLEX		
Acyclovir	400 mg 5x/day (2-3 weeks)	400-800 mg 2-3x/day
Valacyclovir	500 mg 3x/day (2-3 weeks)	500 mg 1-2x/day
Gancyclovir gel 0.15% (Zirgan)	5x/day until resolution of lesions, then 3x/day for another week	
HERPES ZOSTER		
Acyclovir	800 mg 5x/day (7-10 days)	Not needed
Valacyclovir	1000 mg 3x/day (7-10 days)	Not needed

HERPES ZOSTER

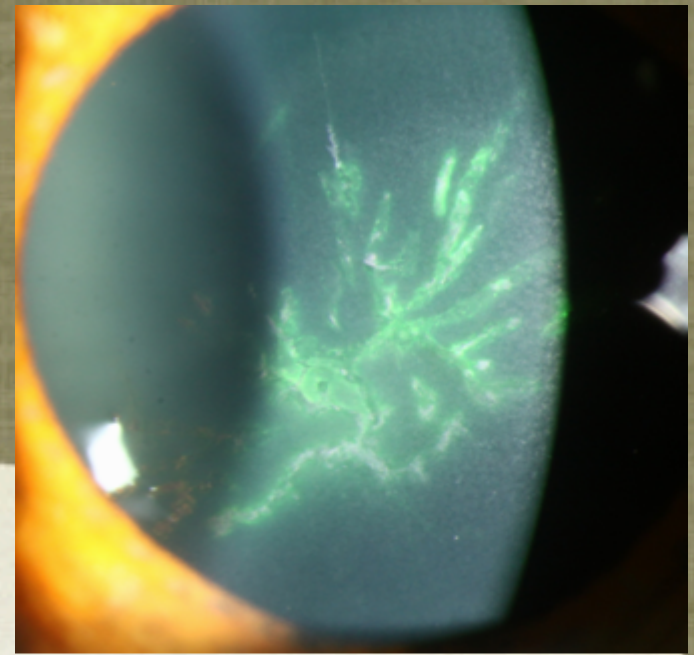
Herpes Zoster



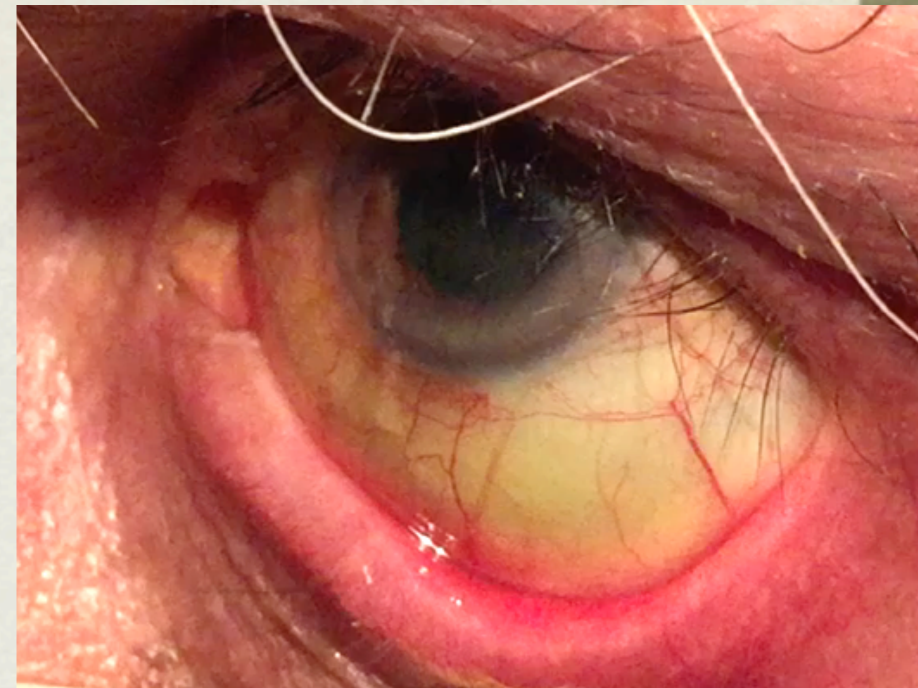
- *One out of every three* people 60 years old or older will get shingles!
- Approximately 1 million cases/year in US, more common in elderly, immunosuppressed. HZO accounts for 10-25% of all cases
- Prodrome prior to rash ("flu-like" symptoms, pain/tingling on skin).
- Need FULL dose of oral anti-virals as soon as diagnosis is made
  - **Acyclovir 800mg po 5x/day** for 7-10 days
  - **Valacyclovir 1000mg po TID** for 7 days
  - **Famciclovir 500mg po TID** for 7 days

3 weeks after Zoster rash, these corneal lesions are seen.
Pt had full dose of Valtrex.
What is diagnosis?
How to treat this?

Herpes Zoster Keratitis



- Zoster dendrites do not have terminal bulbs. They have tapered edges. Staining is not as intense.



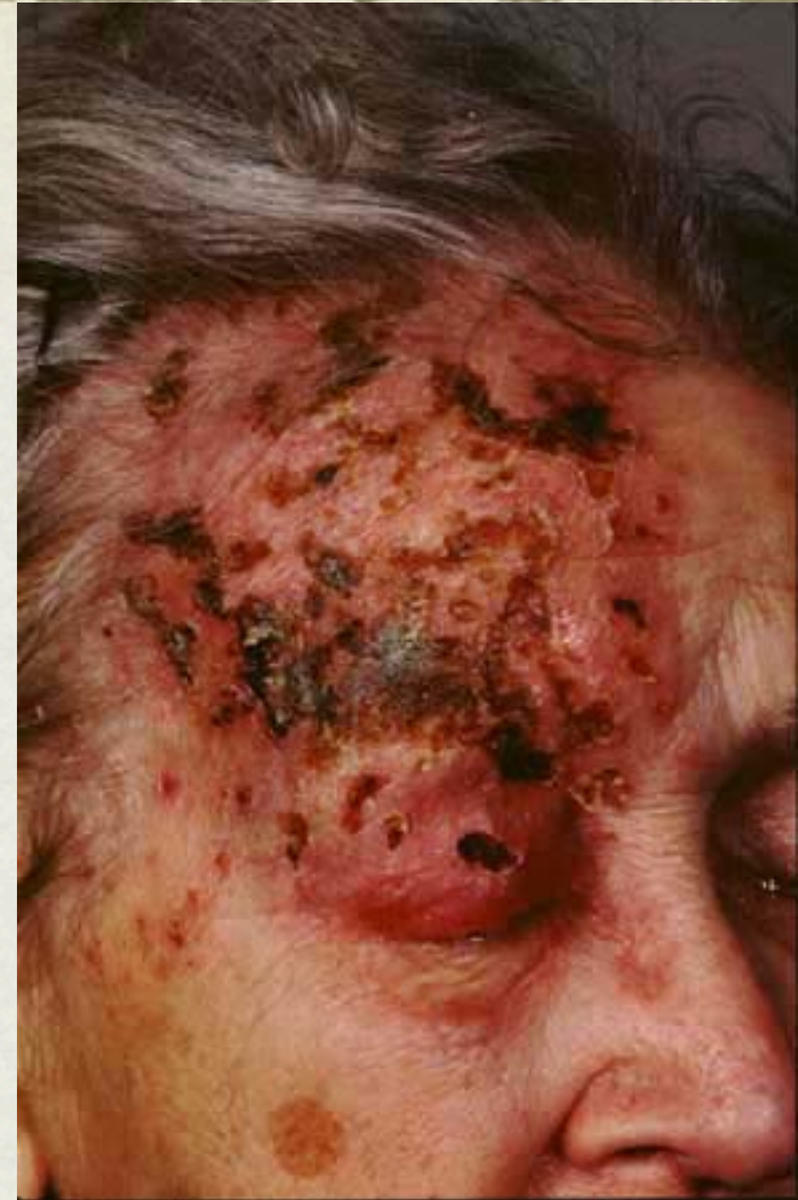
- Treatment of **epithelial** disease: lubrication
- Treatment of **stromal** disease: steroids**,** NO anti-viral cover needed. MAY need steroid long-term.
- Treatment of **iritis**: steroids WITHOUT anti-viral cover as long as pt received full oral dosing once. High IOP classic.

Cataract surgery in Zoster Patients

- Wait until eye is quiet. May need very low dose of chronic steroid to prevent flares. NEVER use viroptic in these patients.
- Check corneal sensation pre-op
- Neurotrophic cornea common
- Careful with NSAIDS, BAK
- *NO ANTI-VIRAL agent is needed post-op.*
- Increase preservative-free lubrication
- More frequent follow up is necessary

Remember Zoster Vaccine

- Zostavax—vaccine against shingles
  - *One out of every three* people 60 years old or older will get shingles!
  - Vaccine decreases risk of developing shingles by 51%
  - If Zoster does develop, disease course will be less severe, with 67% less risk of developing PHN (post-herpetic neuralgia)
  - **Very important. Patients need to be counseled by us!**



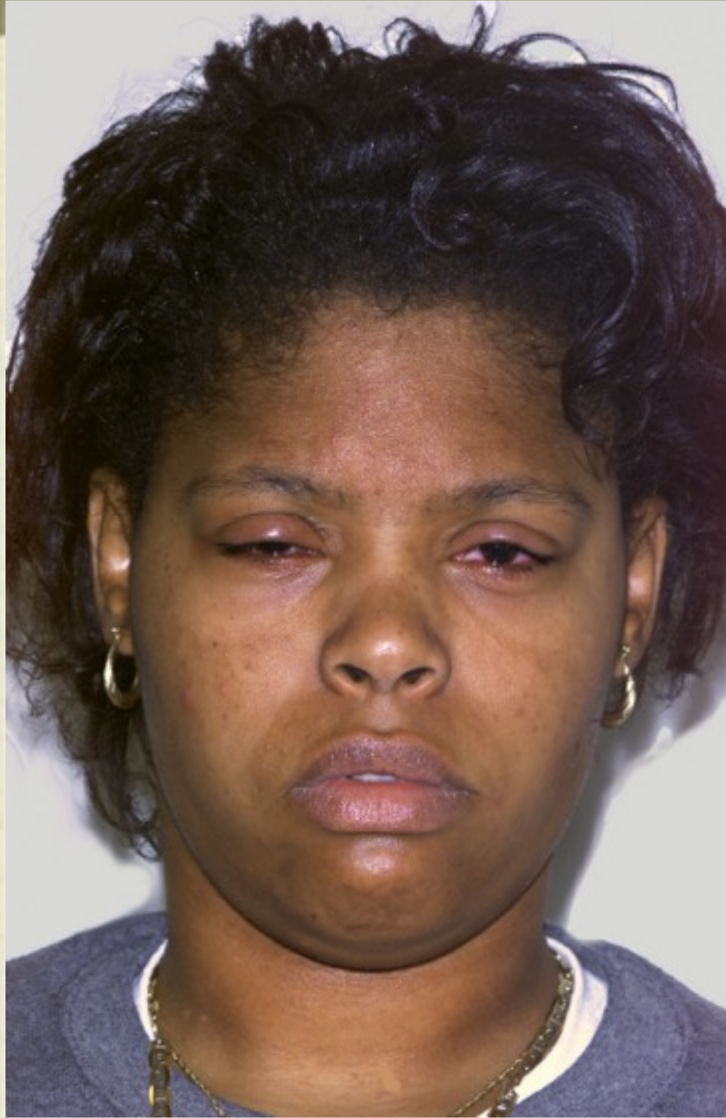
Remember Zoster Vaccine

- Zostavax contraindications:
  - Allergy to any of its ingredients, including gelatin or neomycin
  - Weakened immune system
  - Taking high doses of steroids
  - Pregnant or planning to become pregnant

New Zoster Vaccine:

- New vaccine (HZ/su) is a subunit vaccine with an adjuvant system, as opposed to live-attenuate virus (Zostavax)
- Therefore, the new vaccine can be given to immunocompromised patients and has equal effect in older patients
- New vaccine will *dramatically* reduce the number of cases of zoster (by 97% in subjects over age 50 and by 90% in those over age 70!)
    - Zostavax efficacy decreases to 37.6% in people older than 70
- Side effect is temporary pain at site of injection and myalgia
- If a patient develops zoster, or receives vaccine, they likely have immune protection for about 10 years

Pain, redness in contact lens wearer: Is this herpes?



NO! Always think of ACA in CL wearers with dendritiform lesions

Concluding pearls

- Important to distinguish which herpes virus is affecting the cornea
- If HSV, is there *live* virus on the cornea? If so, need antivirals and NO steroid. If no replicating HSV, OK to use steroids *with* anti-viral cover
- Zoster patients do NOT need antiviral cover with recurrent disease or cataract surgery
- HSV patients need anti-viral coverage when using steroids (unlike VZV patients)
- Zoster vaccine improving and we need to advocate!

Thanks for your attention