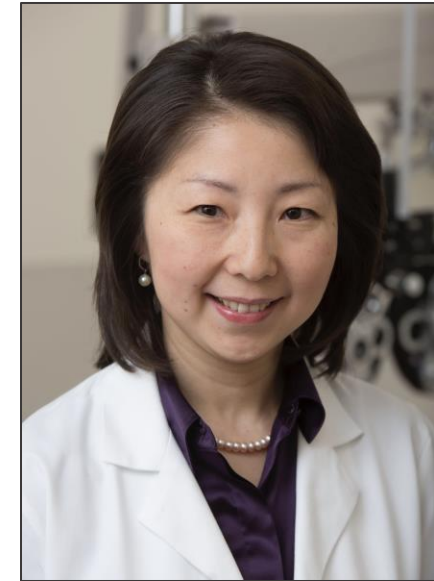


# Your Eyes and Graft-versus-Host Disease

Celebrating a Second Chance at Life  
Survivorship Symposium

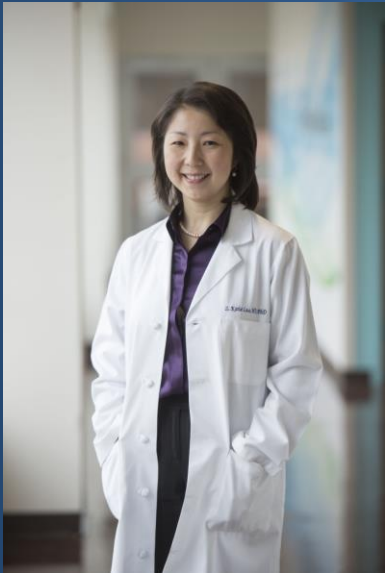
July 11-17, 2020



**Zhonghui Katie Luo, MD, PhD**  
Massachusetts Eye and Ear

# Ocular Graft versus Host Disease

What you should expect and what you can do about it  
- from a survivor's perspective



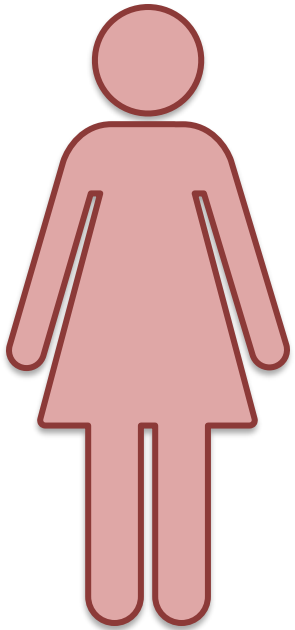
Zhonghui Katie Luo, M.D., Ph.D  
Massachusetts Eye and Ear  
Dana Farber Cancer Institute  
Harvard Medical School.

# Summary

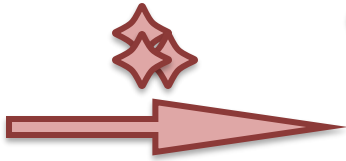
- What is ocular GvHD
- Clinic findings
- Etiology
- Management

# Graft vs. Host Disease

Donor



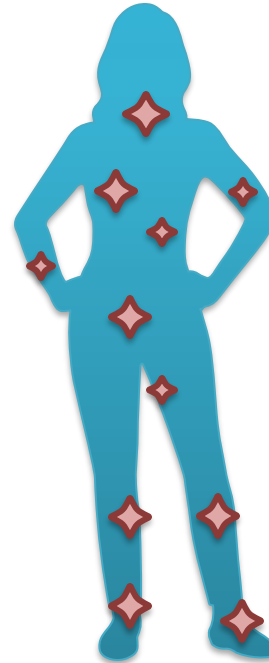
Stem cells



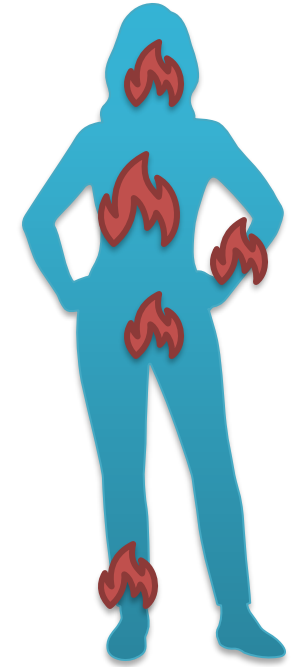
Host/recipient



New immune system forms



Attack host organs



# Ocular GvHD

- Ocular GvHD affects 40-60% patients after allo-HSCT
- It can occur in setting of other chronic GvHD or independently



# Acute ocular GvHD

Most often occurs within first 3 months after HSCT, but can be much later

- skin rash
- elevated liver enzymes
- digestive system dysfunction

The eyes can be significantly affected

# Skin rash

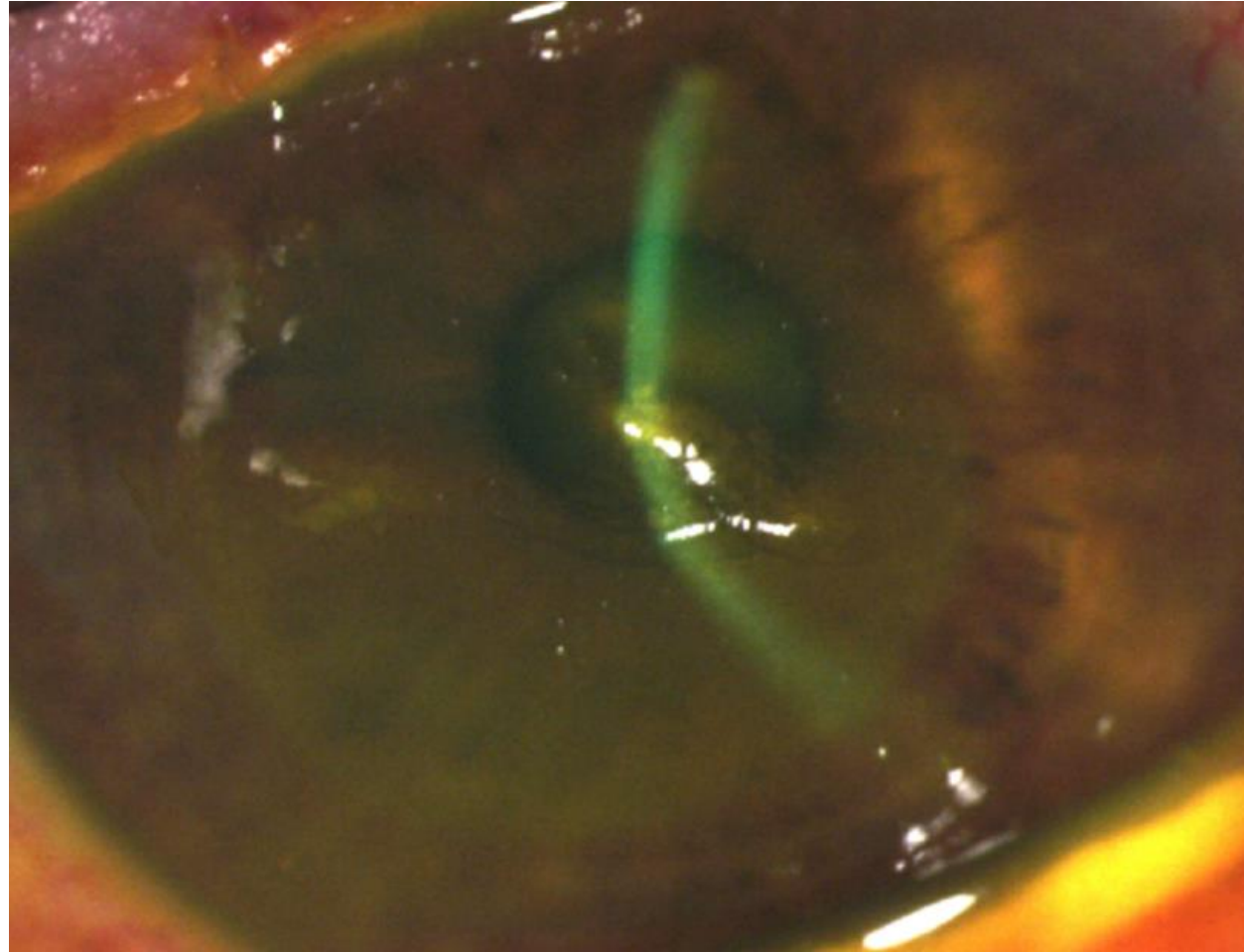


# White film covers the conjunctiva





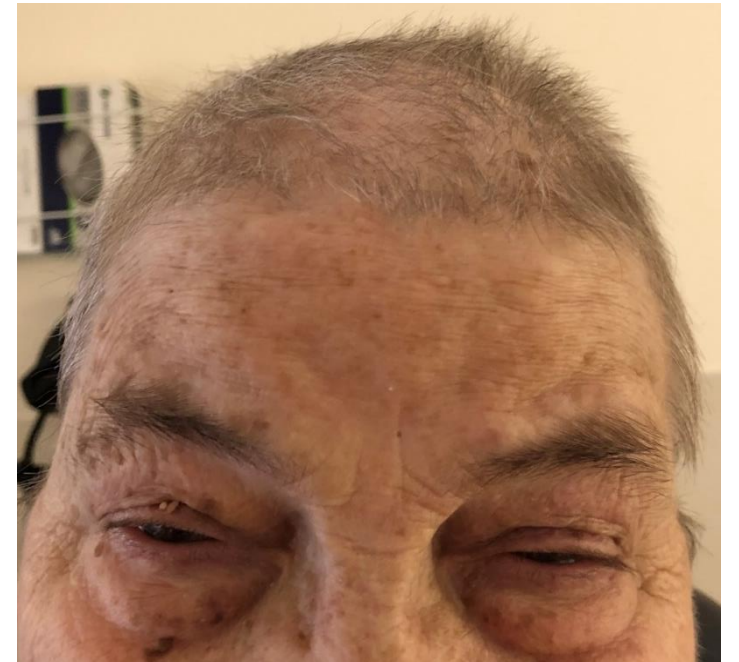
# The outer layer of cornea comes off



# Chronic ocular GvHD

- Most often onset 5m to 24m after HSCT, but can be a few weeks to more than a decade or much later
- Can be isolated, first sign or later sign among other GvHD
- Can have mixed findings with acute ocular GvHD

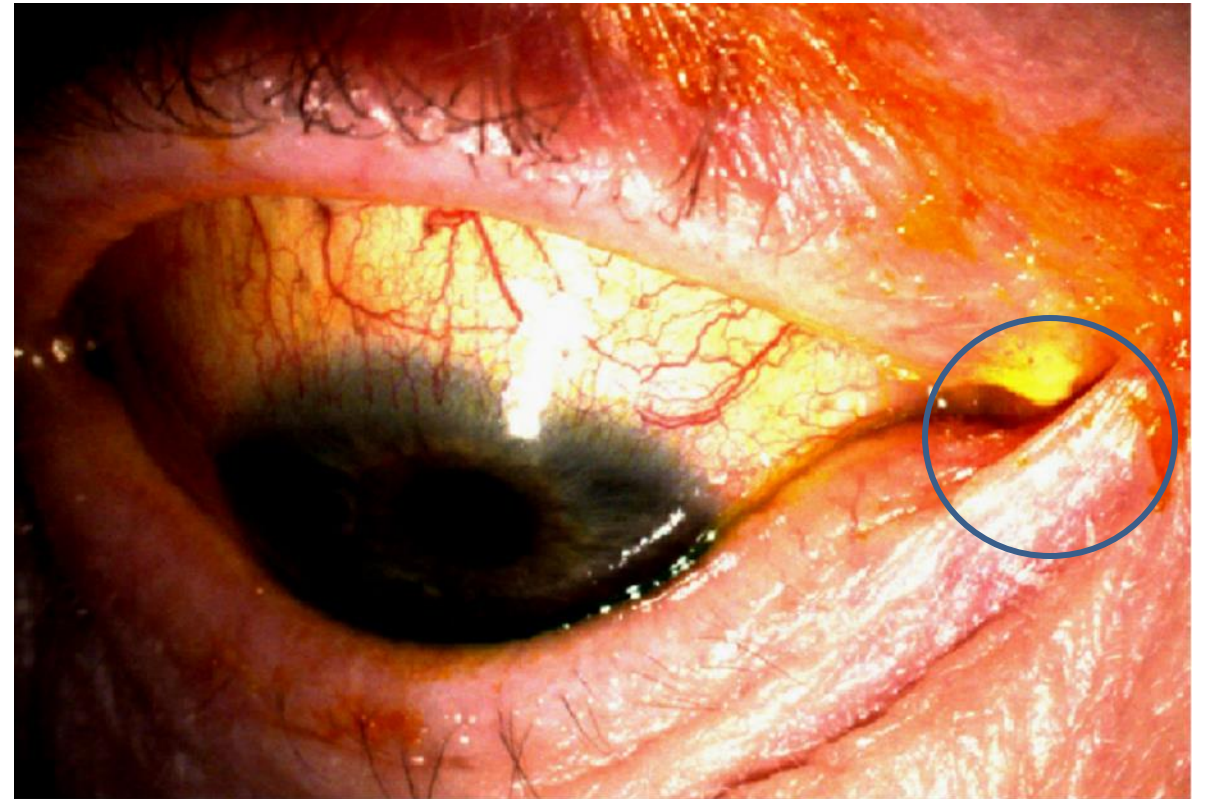
- *Squinting all the time*
- *Sunglasses indoor*
- *Hands over brows*
- *Poor functional vision*



# Blepharitis (red swollen lids, crusting)



# Blepharitis (lid margin ulceration, foamy discharge)

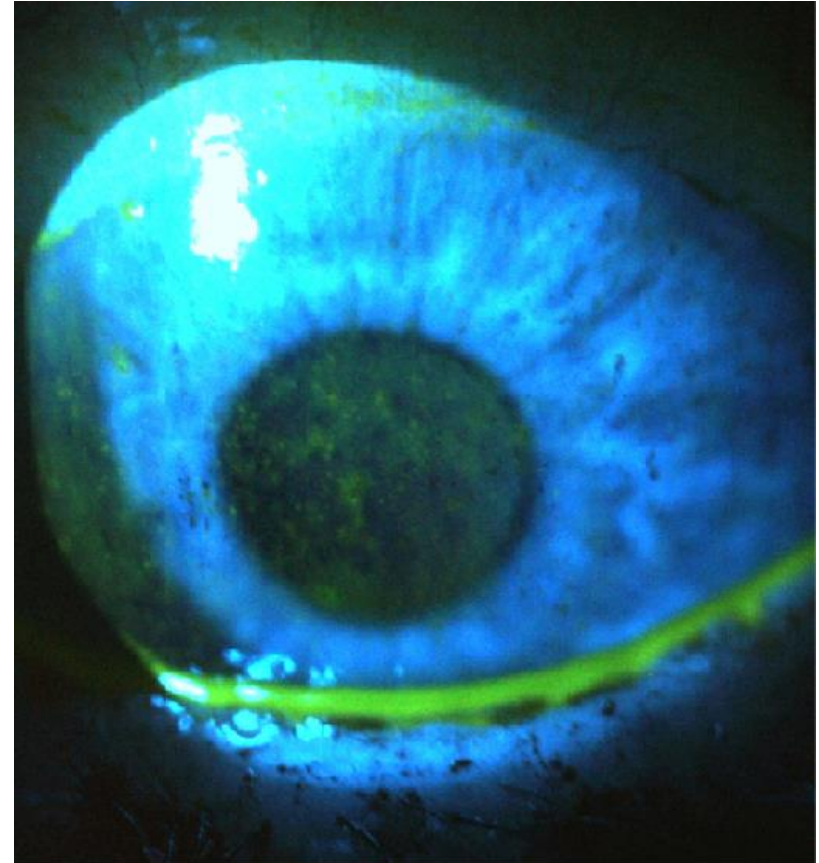
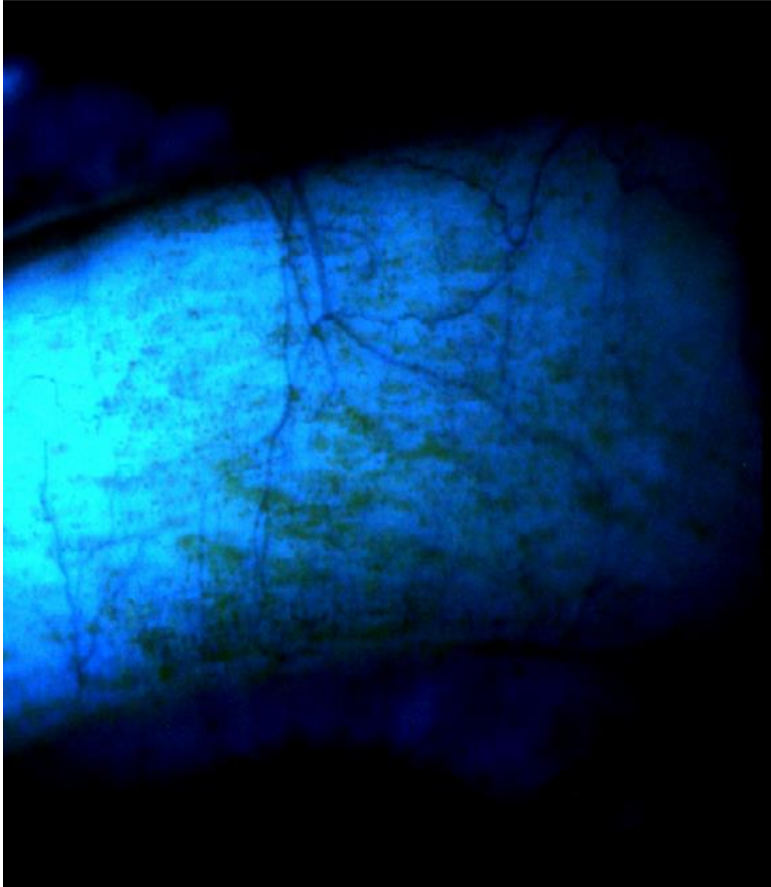


# Keratoconjunctivitis

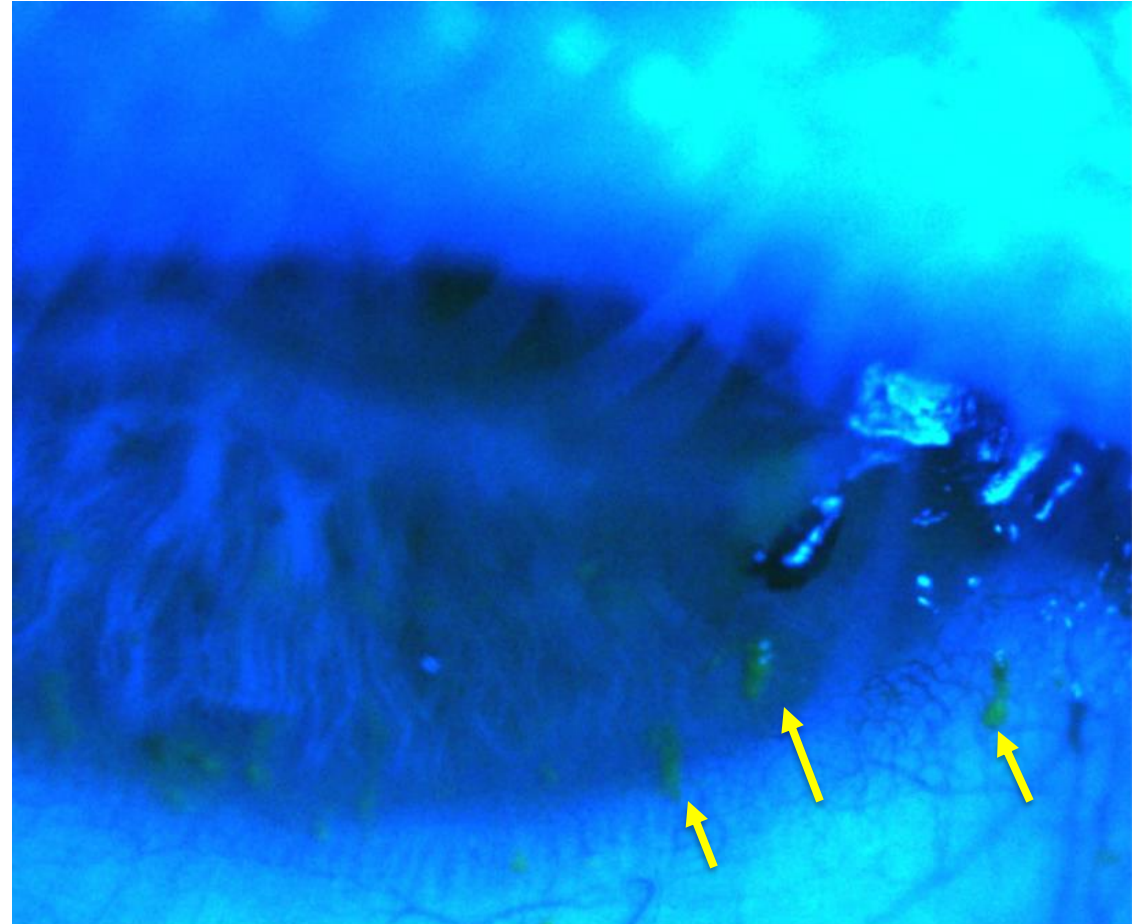
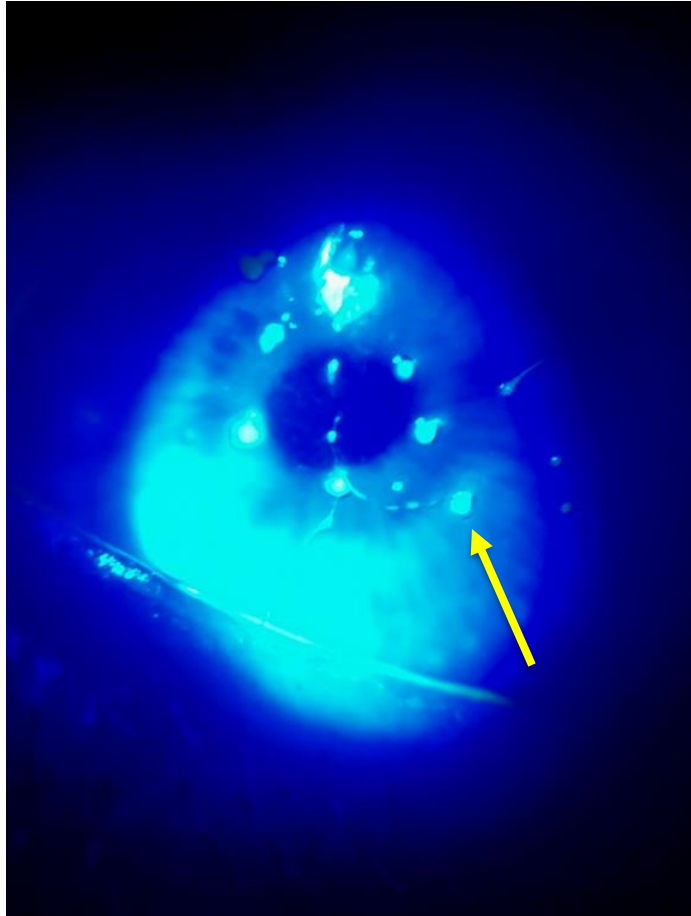
- Not infectious conjunctivitis
- Erythromycin doesn't really work
- Visine is TOXIC!



# Keratoconjunctivitis (damaged surface)

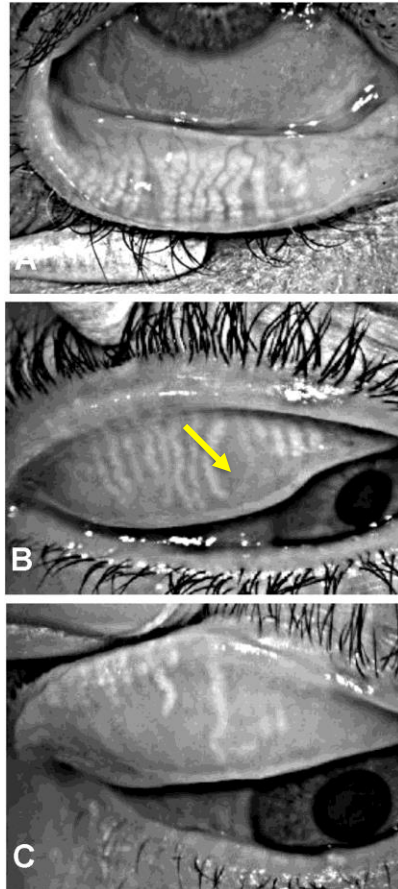


# Filaments (they hurt a lot!)

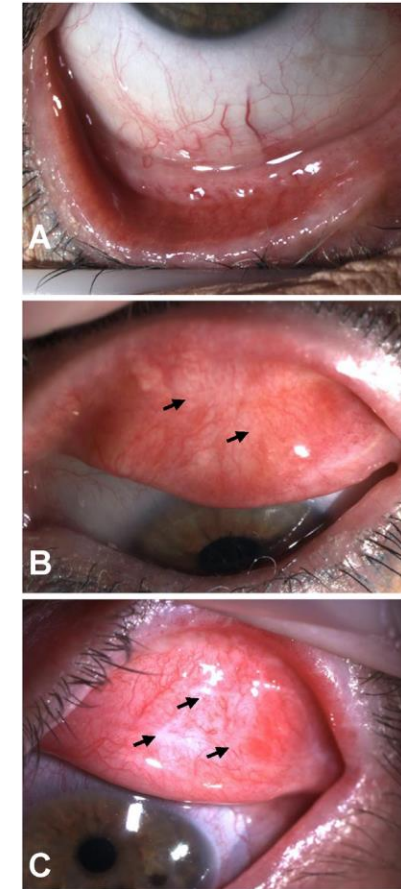


# Important glands on the inside of the lids are damaged as well

Destroyed meibomian glands



Conjunctival scars result of inflammation



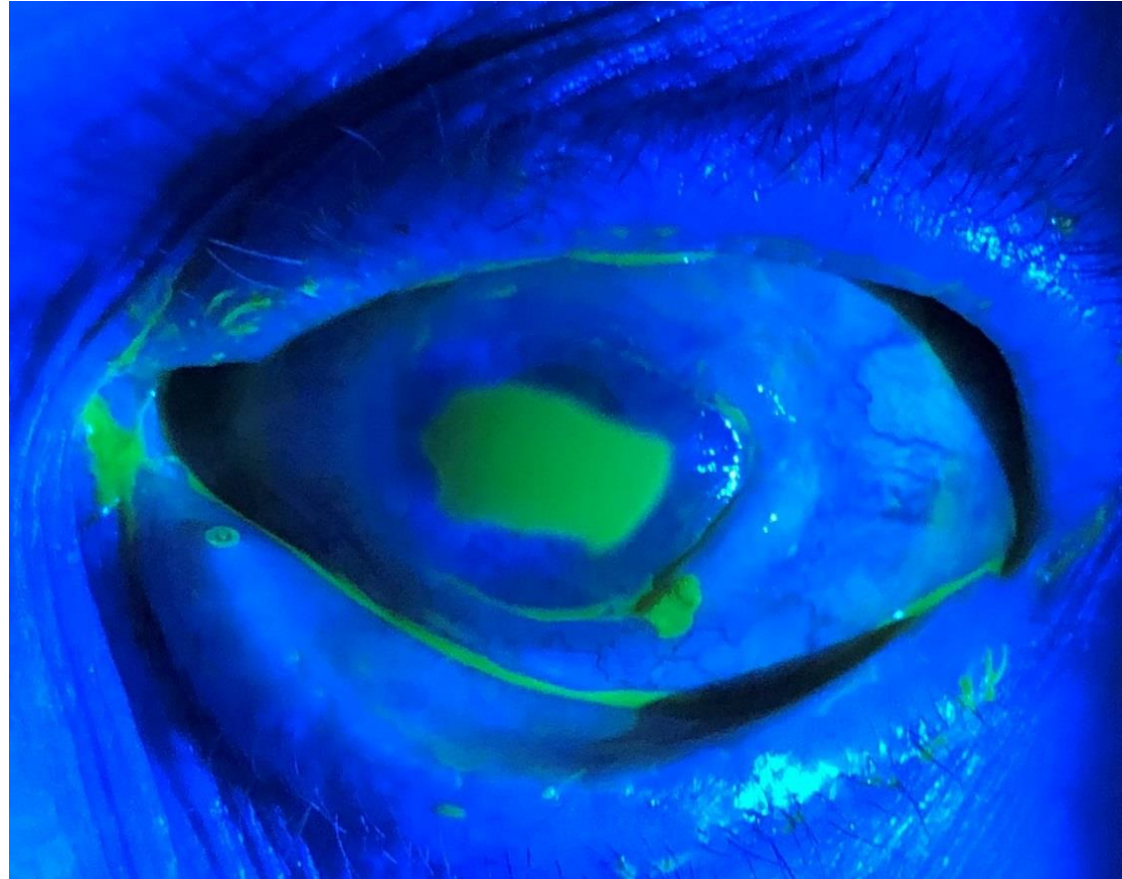
Grade 1 (Mild)

Grade 2 (Moderate)

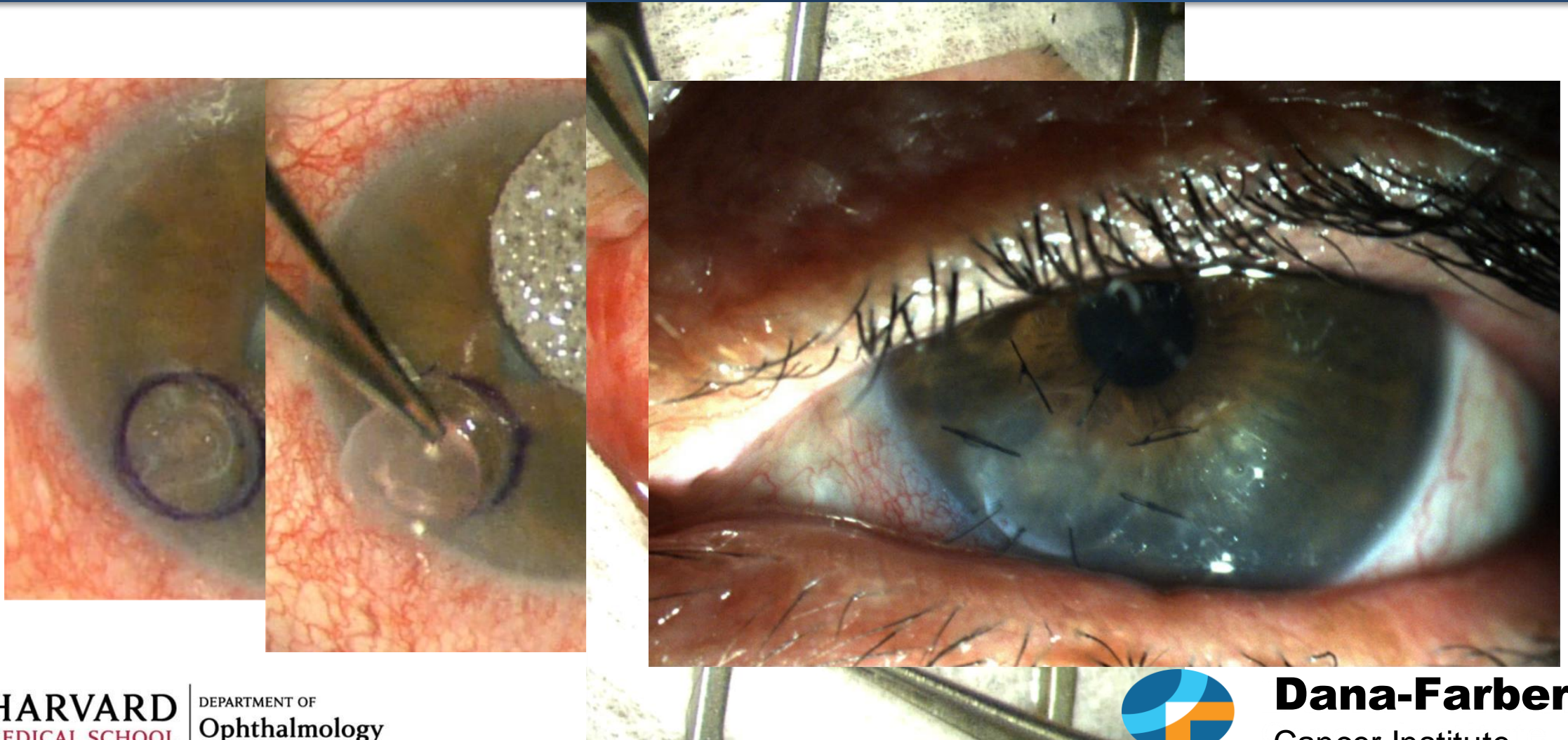
Grade 3 (Severe)



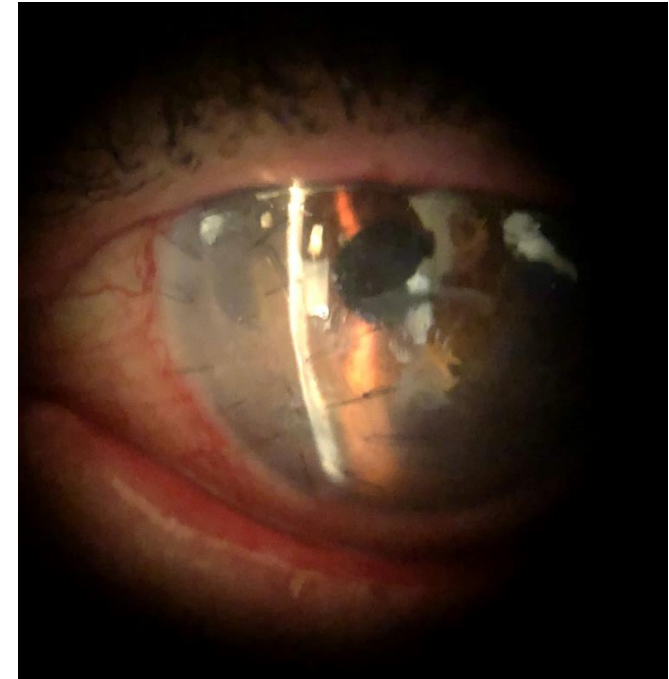
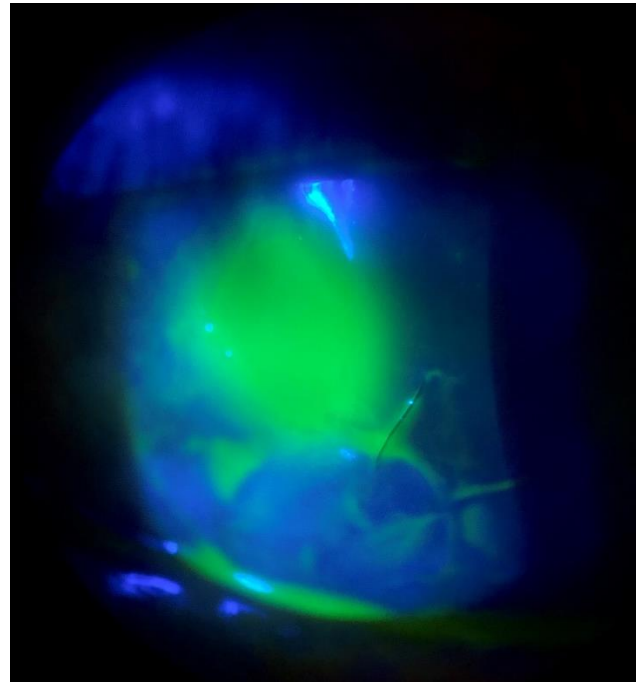
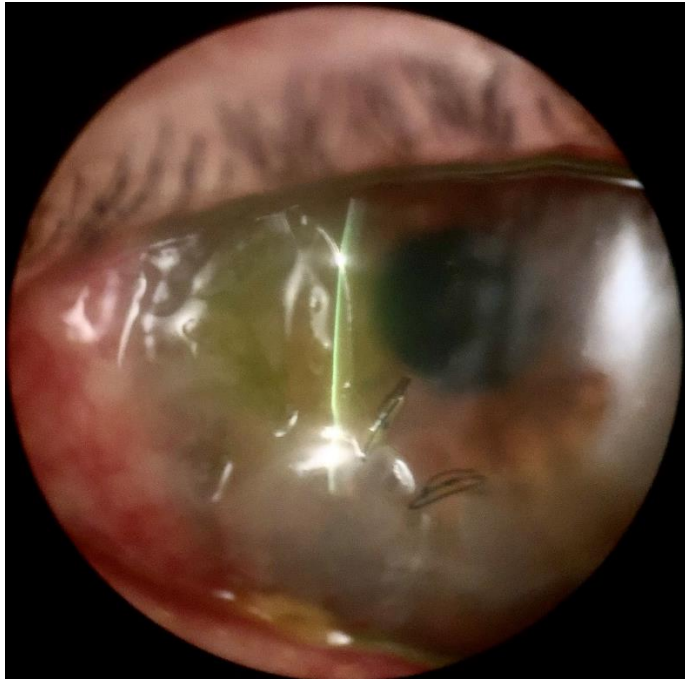
# The surface breaks down when healing is severely compromised



# Cornea can perforate in just days



# Keeps melting



# What can we do about it?

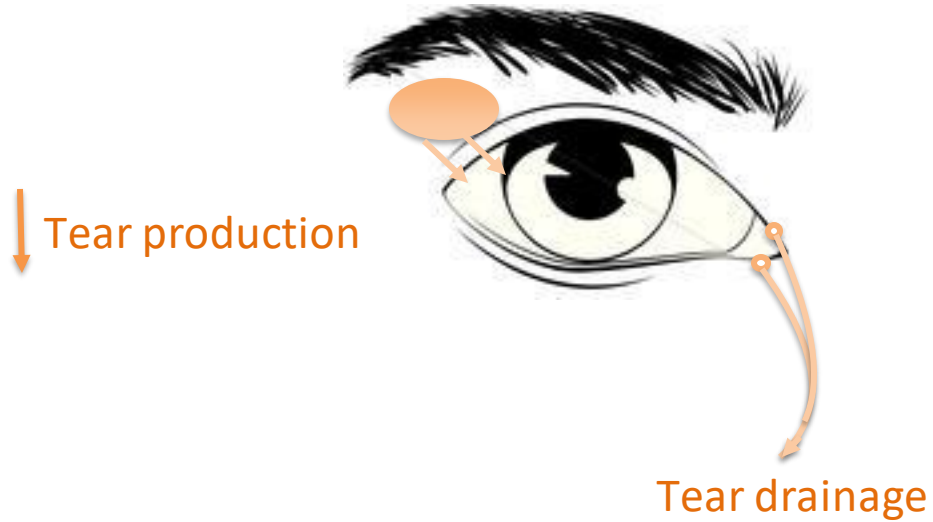
First, understand the problems

Second, avoid preventable damage

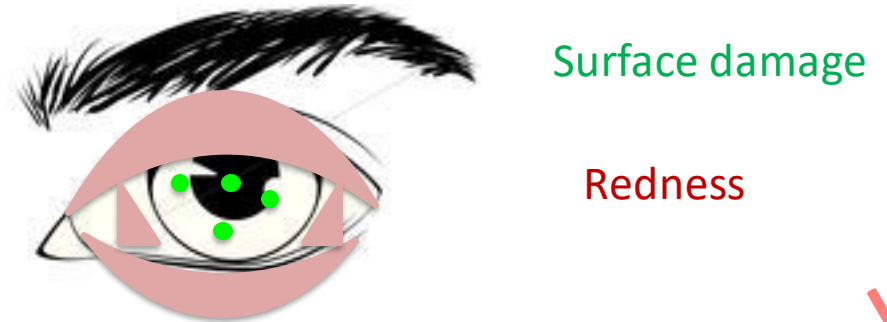
Third, invest (your commitment) in management

# Imbalance between damage and repair

Dryness



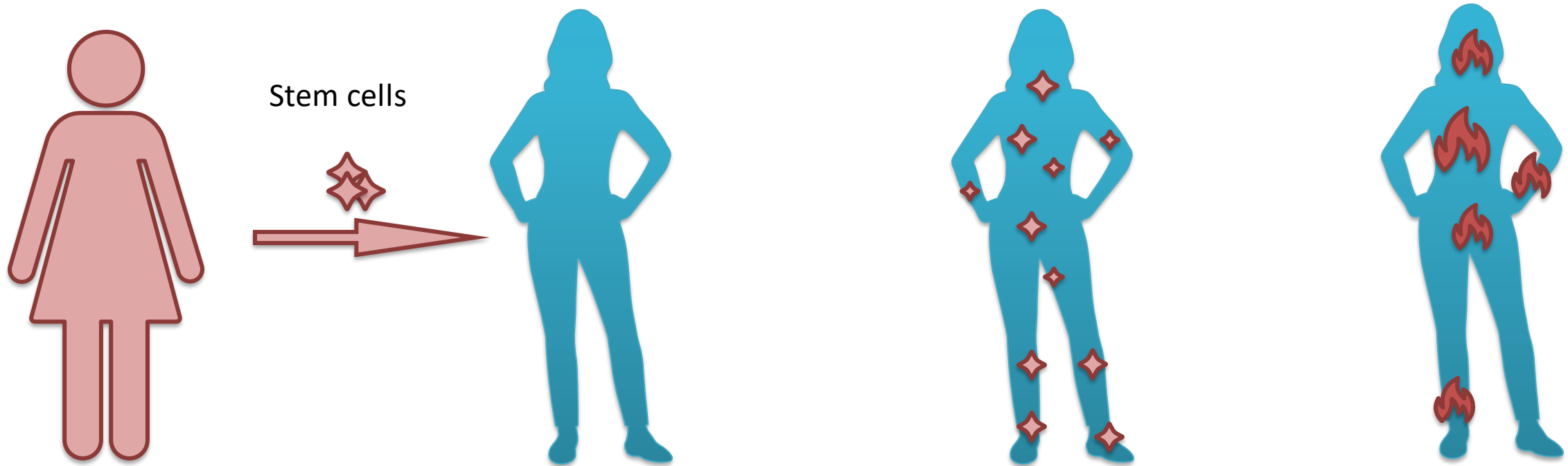
Inflammation



Not able to heal!

# Would it go away?

- the most common question I get



So far, we can manage, but can't get rid of it.

# Avoid harm

- Avoid harmful behavior
  - Do not wear regular contact lens
  - Do not rub your eyes (this is for everybody!)
  - Do not dig for mucous or scratch the crusting with nails
  - Do not use redness reliever such as Visine, Opcon A, Naphcon A, Cleareyes
  - Do not use allergy eye drop such as Allaway, Zaditor
  - No contact lens wear
- Decrease screen time, take breaks
- Be very careful with make up and make up removal



# Control the environment

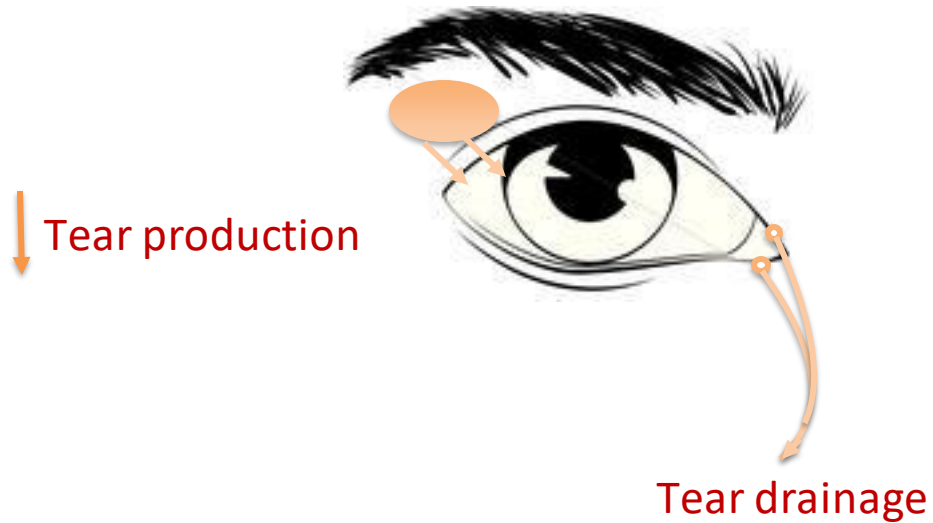
- Modify environmental factors
  - Point air vents in the car away from your face
  - Humidifier ON! all the time when heat is on
  - Wear sunglasses
  - Sports goggles (for motorcycling) available to create “moisture chambers”
- Warm compress (without lid scrubs)





# Keep the eyes wet

Dryness



1. Lubrication very frequently
2. Make more tears (hard to do)
3. Control the environment humidity
4. Punctal occlusion

# Preservative-free Lubricant



Preservative Free Lubricating Ey...  
floridaeyecareassociates.com · In s...



Refresh Plus Lubricant Eye Dr...  
costco.com · In stock



1) Systane Lubricant Eye Drop...  
otcshoppeexpress.com · In stock



Dry Eye Therapy Lubricant Eye ...  
riteaid.com · In stock



SYSTANE® ULTRA Preservative-Fr...  
systane.mylcon.com



Preservative-Free Lubricant Ey...  
meijer.com · In stock



Preservative-Free Lubricant Eye Drops ...  
mheycare.us · In stock



Preservative Free Lubricating...  
grocery.harristeeter.com



FreshKote Preservative...  
healthwarehouse.com · I...



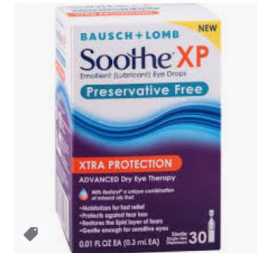
Soothe Lubricant Eye Drops ...  
walgreens.com · In stock



Lubricant Eye Drops ...  
ebay.com · In stock



Systane Lubricant Eye Drops ...  
walmart.com · In stock



# Preservative-free lubricant

- The correct frequency is to keep symptoms at minimum in between the drops
- One drop at a time is enough
- Recapping or not

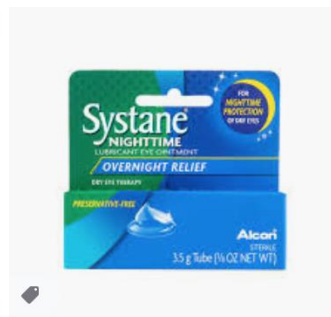
# Lubricant ointment at night



Lubricant Eye Ointment ...  
amazon.com



Amazon.com : Systane Nightti...  
amazon.com



SYSTANE Lubricant Eye Ointme...  
walmart.com · In stock



Lubricant Eye Ointment, 0.12 O...  
cvs.com



Refresh Lacri-Lube Lubricant E...  
walgreens.com · In stock



Amazon.com: PACK OF 3 - Syste...  
amazon.com



Systane GEL Lubricant Eye G...  
heb.com · In stock



Refresh Lacri-Lube Lub...  
amazon.com



Bausch & Lomb Lubricant Ey...  
riteaid.com · In stock



GenTeal Lubricant Eye Ointment – Dry...  
dryeyeshop.com · In stock



Alcon Systane Nighttime Lubrica...  
ebay.com



Refresh PM Lubricating eye ointmen...  
dryeyeshop.com · In stock

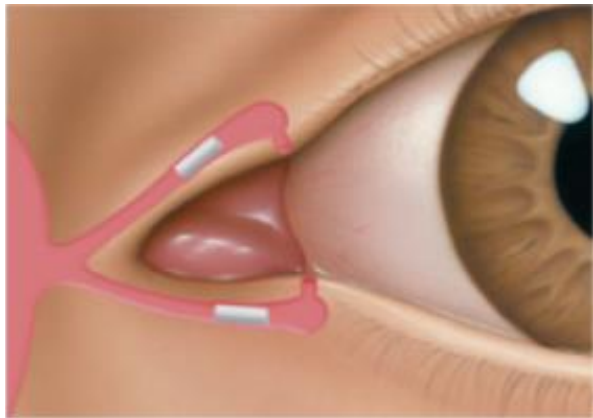
preservative-free

# Make more tears

- Artificial tears (*preservative-free*)
- ReStasis and/or Xiidra
  - seem to work only in very mild cases
  - early start (prior to transplant) may have some benefit
  - not helpful in late stages
- Oral Pilocarpine (Salagen) or Cevimeline (Evoxac)
  - Often Rx for dry mouth
  - Induce tear production as well
  - Side effects can be moderated by careful titration in many cases

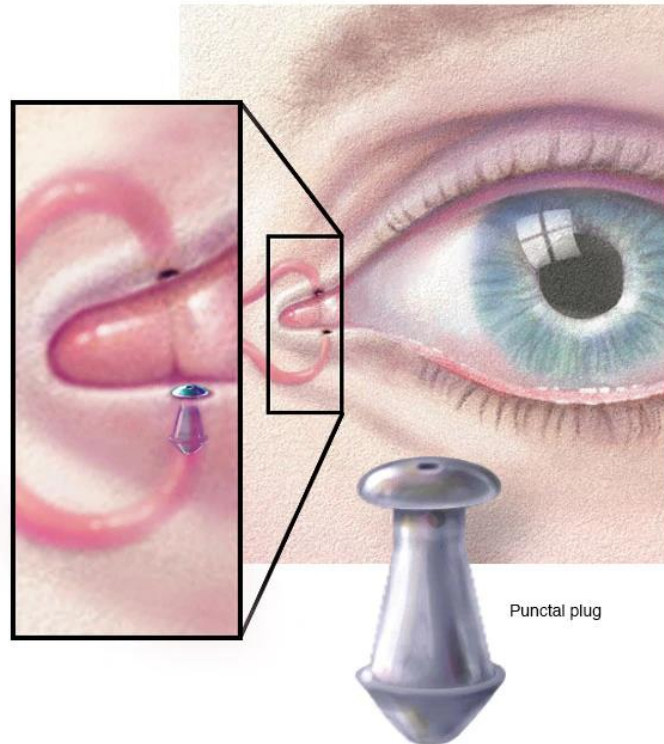
# Punctal occlusion - close the drain

Dissolvable or non-dissolvable



Jehangir N et al. Journal of Ophthalmology 2016

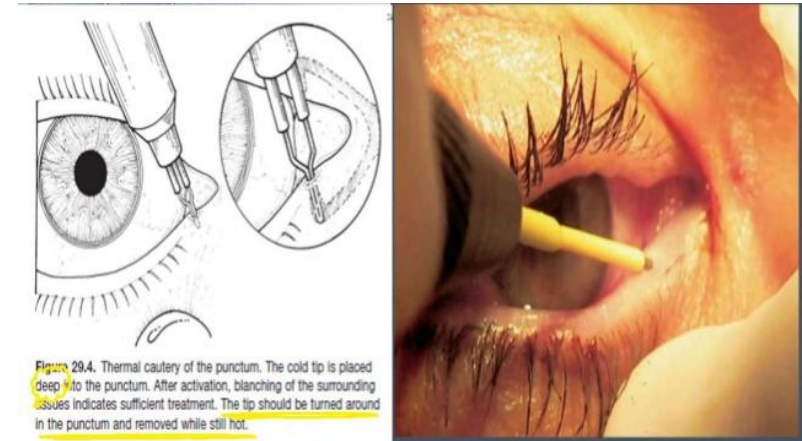
Permanent - silicone



Punctal plug

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Punctal cautery



Marjan Mazouchi. Health & Medicine 2019

# Control the inflammation

- Systemic immunosuppression and GvHD treatment
  - oral steroids, tacrolimus, sirolimus
  - watch out during taper!
  - Garden variety of new GvHD treatments
- Topical steroids (appropriate taper and close monitoring)
  - If a steroid eye medication is prescribed, follow-up is a must
  - steroid strength
  - drop vs. ointment
- Serum tears (from your own blood)
  - labor intensive but often works well
  - Blood draw every couple of months

Inflammation



Surface damage

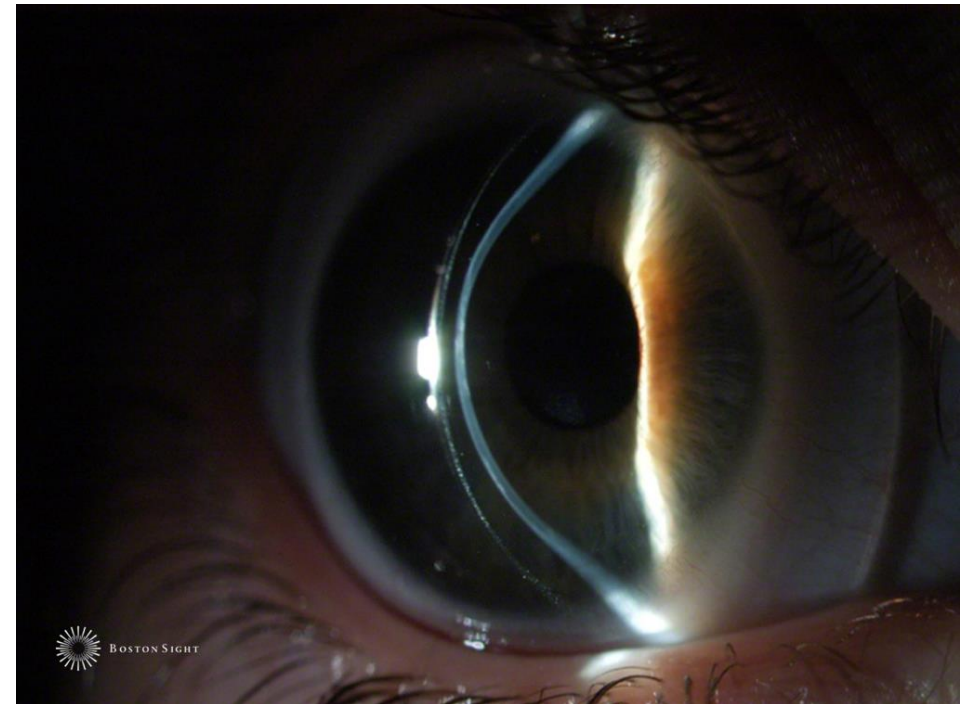
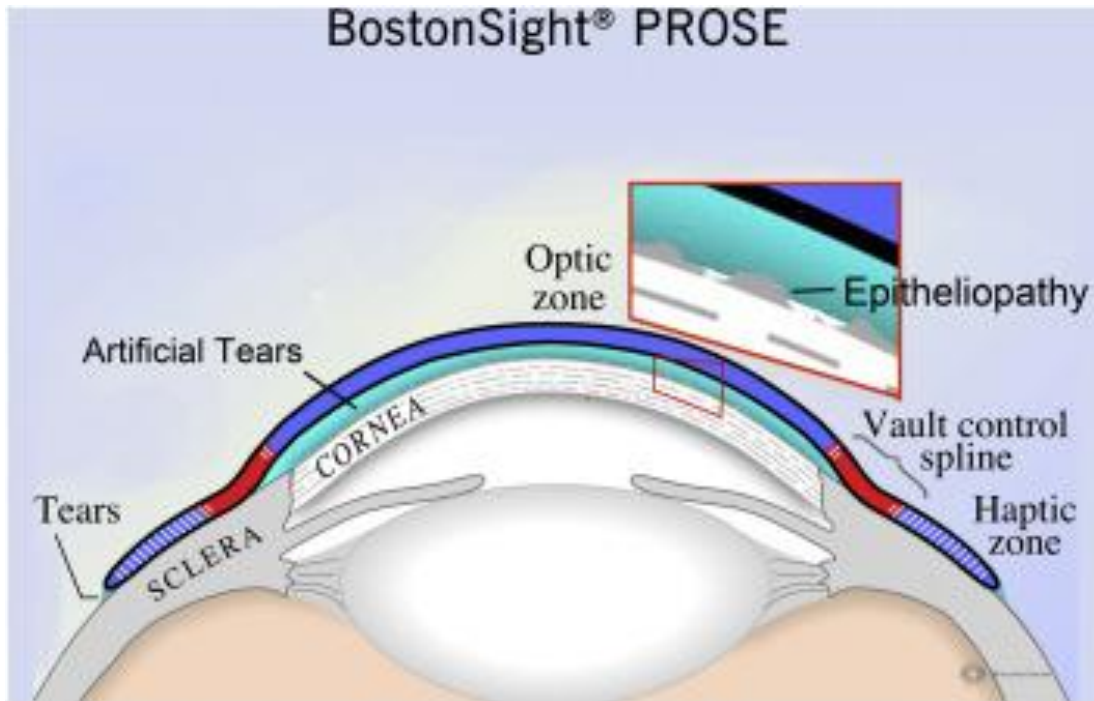
Redness

# Therapeutic scleral lens

1. These are **NOT** regular soft or hard contact lens
2. They are fitted only by an optometrist who had special residency training
3. Your transplant doctor or GvHD eye doctor's referral is needed
4. High cost, poor insurance coverage, steep learning curve, but life-changing result for many
5. Major ones are:
  - Boston Sight ([www.bostonsight.org](http://www.bostonsight.org))
  - GP lens Institute ([www.gpli.info](http://www.gpli.info))
  - EyePrintPro ([www.eyeprintpro.com](http://www.eyeprintpro.com))



# BostonSight PROSE



# Surgical treatments

1. The goal is to avoid having to do surgery if possible
  - corneal patch or transplant is **NOT** curative and is harder to take care of in the long run
  - amniotic membrane helps with healing but will not melt in days or weeks
  - none is comfortable
2. Avoid cosmetic eyelid surgery, eyeliner tattoo, lash extension, or laser vision correction
  - any tissue damage can increase inflammation
  - lid surgery and LASIK worsen dry eyes
3. Cataract surgery is an **exception**, it is necessary but needs to be done with extreme care
  - go to a surgeon with experience in oGvHD
  - pre-op and post-op care different from general population

# Support the research effort

- 16 other trials in the US to date
- 12 completed/terminated/withdrawn - recruitment issue
- None FDA approved

# What you can and should do?

- Recognize eye symptoms
  - You are busy, tired, hurt and fed up!
  - However nobody knows how your eyes feel before and after
  - Remember early diagnosis and treatment make a difference in outcome
  - Avoid getting to the point of no return

# What you and your family can do?

- Advocate for diagnosis and treatment
  - request inpatient consult if needed
  - volunteer information to you transplant doctor about your eyes
  - ask for referral to **eye doctor experienced in GvHD** before and after transplant
  - discuss any **eye treatment or procedure**, and **systemic treatment change** with the specialist

# What your eye doctors can do?

- Look for signs of ocular GvHD vs. other eye problems
- If you have a local eye doctor (general ophthalmologist or optometrist)
  - co-manage with **specialist** experienced in oGvHD
  - It is **NOT** just dry eyes!
  - It can **rapidly** progress into **serious** and **irreversible** situations!
- Initiate treatments as discussed earlier
- Promote the communication between all your doctors
  - Transplant service, dermatology, oral medicine, oncologist, PCP, everybody!

# It is “we” and “us” working together!

First, understand the problems

Second, avoid preventable damage

Third, invest (commit) in management



*Thank you!*



**HARVARD**  
MEDICAL SCHOOL

DEPARTMENT OF  
Ophthalmology





# Questions?



Celebrating a Second Chance at Life Survivorship Symposium

July 11-17, 2020

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