

**JUST ANOTHER DAY: PRACTICAL ANTERIOR
SEGMENT CASES FOR PRACTICAL CLINICIANS**
AKA: ANTERIOR SEGMENT CHALLENGES

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**FINANCIAL DISCLOSURES FOR
MARC R. BLOOMENSTEIN, OD, FAAO**

- | | | |
|------------------------------------|-----------------------------------|-------------------------------------|
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| • AVELLINO-CONSULTANT | • OCUPHIRE-CONSULTANT | • STAAR SURGICAL-SPEAKER/CONSULTANT |
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All financial relationships have been mitigated.

CASE



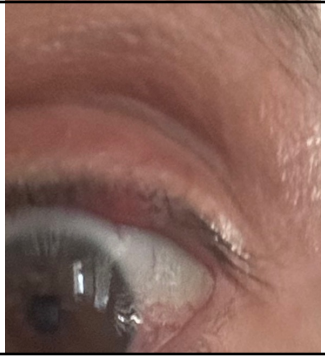
**911: "What's your
Emergency?"**
BO: "I have a nite alarm fire on my eyelids"

- Bobby is a Fire Captain for Phoenix
- He is the spokesperson PFD
- "Those bumps are coming back! And I can't stand to look at myself...(09.2023)"
- Previous Treatment
 - Moist heat, Z-Pack, Zylet drops aid
 - Help!



Oy vey!!

I told Bobby to come into the office.
He has a flat choroidal lesion
in OS
and he has this:



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Demodex Blepharitis

October 2023-Patient #1

- Discussed the use of lotilaner 0.25% BID
- "Do you think it was the demodex that has increased and is causing my lid issues?"
- Started lotilaner ophthalmic solution 0.25% Nov. 2024 (BID for 6 weeks)
- "This is amazing, my eyes feel great."
- You may be the best doctor I have been to in my life (I presume he thought that)
- August 2024
- "I think I am getting a new bump. I started the Xdemvy from last year. This is a miracle drug."
- May I have some more please???

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Demodex and Hordeola

Treatment strategies

- Microblepharoexfoliation: manual with okra polysaccharide, oscillatory cleaning in office
- Lotilaner 0.25%
- Intense Pulsed Light
- ASCRS 2022
- Full Periman IPL Protocol on YouTube: DryEyeMaster



FIGURE 5: Improvements in appearance of chalazion after one session of IPL treatment. IMAGE COURTESY LAURA M. PERIMAN, MD

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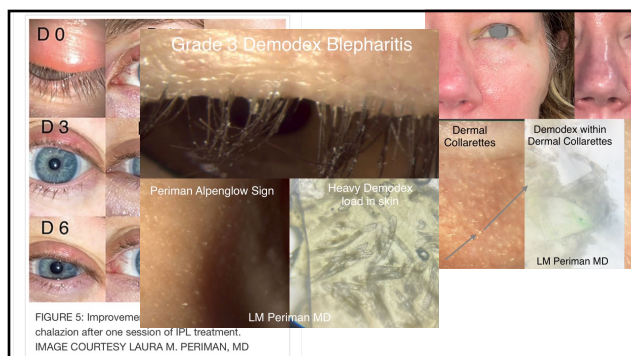
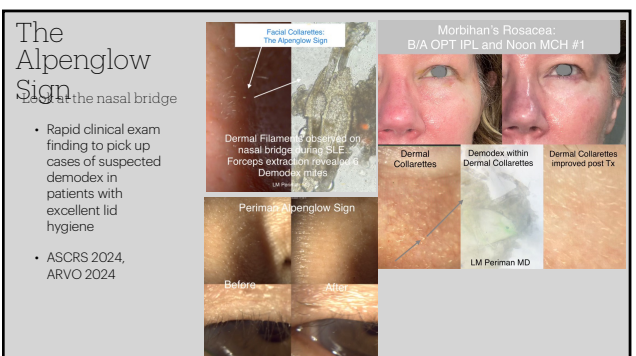


FIGURE 5: Improvements in appearance of chalazion after one session of IPL treatment. IMAGE COURTESY LAURA M. PERIMAN, MD

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- Rapid clinical exam finding to pick up cases of suspected demodex in patients with excellent lid hygiene
- ASCRS 2024, ARVO 2024

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Rosacea

Management

- Treat demodex:
 - In office chemical peels
 - OPT IPL
 - compounded ivermectin cream
 - dermaceutical skincare
 - Lotilaner 0.25%

Severe Facial and Ocular Rosacea: Successful treatment with Periman Protocol

August 2020 April 2022

LM Periman MD

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Lotilaner ophthalmic solution, 0.25%

- The first and only FDA-approved treatment for *Demodex* blepharitis (July 2023)
- Paralyzes and eradicates *Demodex* mites by selectively inhibiting parasite-specific GABA-Cl channels

Lotilaner

- Potent non-competitive antagonist of insect and arachnid GABA-Cl channels
- Highly lipophilic molecule

Reference: XDEM001 [prescribing information], Tarsus Pharmaceuticals, Inc.; 2023.

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Studies to Know: SATURN-1 and SATURN-2

- Two 6-week, randomized, multicenter, double-masked, vehicle-controlled studies

833 Patients

Vehicle
(418)

Lotilaner
(415)

- Patients were randomized to either lotilaner or vehicle at a 1:1 ratio, dosed twice daily in each eye

References: 1. Yeu E, et al. Cornea. 2023 Apr 1;42(4):435-43. 2. Gaddie IB, et al. Ophthalmology. 2023 Oct 1;130(10):1015-23. 3. Sadr, E. Castillo, RM, and Jazalat, P. Presented at ASCRS 2023, May 5-8, 2023, San Diego, CA.

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SATURN-1 and SATURN-2 Study Results

- Collarette Reduction (≤ 2 collarettes)**
 - 50% compared with 10% vehicle
- Mite Eradication (0 mites/lash)**
 - 60% compared with 16% vehicle
- Erythema Cure (Grade 0)**
 - 25% compared with 8% vehicle
- Collarette Reduction (≤ 10 collarettes)**
 - 85% compared with 28% vehicle

References: 1. Yeu E, et al. Cornea. 2023 Apr 1;42(4):435-43. 2. Gaddie IB, et al. Ophthalmology. 2023 Oct 1;130(10):1015-23. 3. Sadr, E. Castillo, RM, and Jazalat, P. Presented at ASCRS 2023, May 5-8, 2023, San Diego, CA.

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Oh for F-sake!

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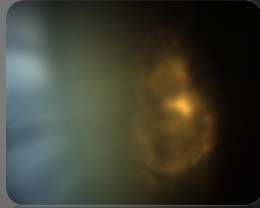
What the F?

- 67 year old WM
- "My vision is not good...I have blurred vision. My eyes cry a lot too. They cry all the time."
- +NIDDM (diet controlled 15 years)
- NKMA
- History of skin lesion removed from cheek

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What the F?

- VACC
 - 20/30 (PH-20/20) OD
 - 20/100 (PH-20/70) OS
- SLEX
 - 2+ guttata-OU
 - Mild pigment on endo-OU
 - 1/2+ NSC/Tr PSC-OD
 - 2+NSC/2+ PSC-OS



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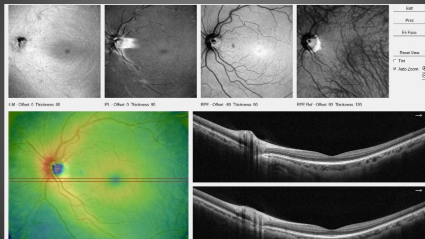
Cataract Surgery OS

- VASC
 - 20/100
 - 2-3+ Striae
 - 3+ POME
 - 1+ cells
 - Lens centered
 - IOP
 - 14 mmHg (ORA)



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Optovue Avanti-OS



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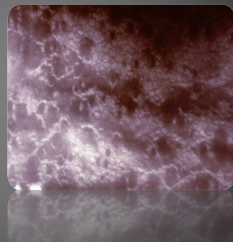
Fuch's Dystrophy

- Autosomal dominant inheritance
- Bilateral / Asymmetry
- Late onset > 50 y.o.
- Females affected 3 times more than males
 - 5.7 % develop edema
- Characterized
 - Corneal guttata
 - Excessive accumulation of abnormal endothelial secretions
 - Appears in 30-40th year of life

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Fuch's Dystrophy

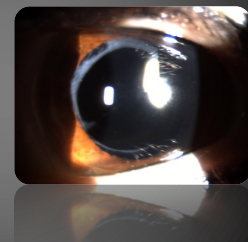
- Characterized
 - Corneal Guttata
 - Small refractile "drops" on corneal endothelium
 - Affects the "pump" action of the endothelium
 - Edema
 - Greater in the AM
 - Desiccates as day goes on
 - Long standing edema may lead to corneal scarring
 - RCE's common



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What the F?

- 6 months PO
- VACC
 - 20/30-OS
- Slex
 - Well centered lens
 - 3+ guttata
 - Mild pigment endo
- IOP
 - 15 mmHg (ORA)



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What the F?

- 13 months later
 - Patient calls....
 - “Sorry to bother you on a Sunday, but my eye is blurry today and it hurts alittle.”
 - “I have seen the corneal surgeon recently and he said my cornea looked good.”
 - “I was 20/30. Today it is not so great..”
 - SO.... I head into see patient...

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“Just when I thought I was out they pull me back in”

The Godfather Part III (we skipped II)

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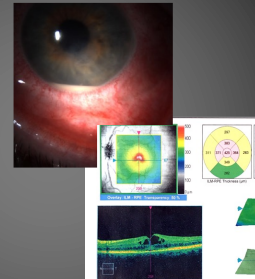
The Godfather II

- 3 months later
 - Patient calls....
 - “Sorry to bother you on a Sunday, but my eye is blurry today and it hurts a little.”
 - “I saw the corneal surgeon a month ago and he said my cornea looked good.”
 - “I was 20/30. My VA was getting a little blurry but today it is not so great..”
 - “Really light sensitive and my eye is red”
 - “My wife thinks she can see my lens in my eye”
 - “And it hurts..did I mention the pain?”
 - SO.... I head into see patient

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CASE STUDY

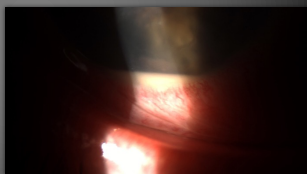
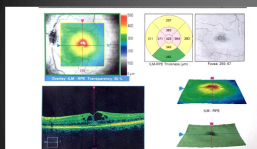
- VAsc
 - OD 20/50 and OS HM
 - IOP
 - 14 OD and 31 OS with ORA
- SLEX:
 - OD: A/C-D&O; Iris round;
 - 1-NSC/1+PSC
 - OS: 3+ conjunctival injection,
 - 3+Cells/flare; 12.5% hypopyon; centered IOL
- OCT:
 - OS: CME



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Why???

“What did you do?”



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Patient's Medical Hx

- NIDDM-diet controlled
- No corneal ulceration
- No Viral Infections
- No auto-immune or inflammatory conditions
- Patient states:
 - “I feel the eye just has never been right since cataract surgery”
- Blood Results

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Lab Work

	PURPOSE	NORMAL VALUES	RESULT
Erythrocyte Sedimentation Rate (ESR)	Inflammation	≤ 30 mm/hr	Elevated (110 mm/hr)
C-Reactive Protein (CRP)	Inflammation	<6 mg/L	Elevated (19.35 mg/L)
White blood cells	Inflammation	4×10^3 to $11 \times 10^3/\mu\text{L}$	Mild leukocytosis ($13.1 \times 10^3/\mu\text{L}$)
Human Leukocyte Antigen B27 (HLA-B27)	Specific protein strongly associated with spondyloarthritis	Negative	Positive
Herpes Simplex Virus (HSV) IgG	Herpes simplex virus-specific antibody	Negative	Positive
Herpes Simplex Virus (HSV) IgM	Herpes simplex virus-specific antibody	Negative	Positive
Angiotensin-Converting Enzyme (ACE)	Sarcoidosis	Negative	Negative
Toxoplasma	Toxoplasmosis	Negative	Negative
Treponema Pallidum Antibody (TPHA-RPR)	Syphilis	Negative	Negative
Rapid Plasma Reagin (RPR)	Syphilis	Negative	Negative
Varicella-Zoster Virus (VZV) Ixer	Varicella zoster virus antibodies	Negative	Negative

What to look for?

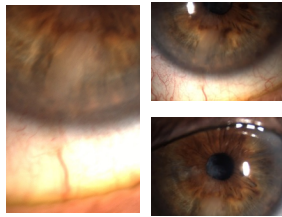
In a retrospective study in AJO 2016:

Persistent iritis
Increased IOP
Corneal edema

Retained Lens material

Study concluded that delay in cataract diagnosis was the most common factor

Retained Nucleus



Referred Patient to Retina

Called my personal retinal specialist

Danesh: Hey when are you coming in to get more laser?

Me: Danesh, I can't hear you. Must be a bad connection

Patient was seen:

Posterior Uveitis

B-scan demonstrated multiple refractile particles in the vitreous-retained lens nucleus

Patient under PPV next day

Removed lens material

Culture was negative for aerobic or anaerobic organisms

Triamcinolone injection; Pred Forte q2h; ketorolac qid -OS

Most Common Causes of Hypopyon

- HLA-27 Positive Patients
 - Bechet's
 - Ankylosing spondylitis
 - Reactive arthritis (Reiter's)
 - 50% of cases
 - 3X's more common in males
- Corneal Ulcer
- Endophthalmitis
- Toxoplasmosis
- Keratitis
- Iatrogenic/Trauma
- Syphilis
- HSV

Typical Treatment

- Referral to rheumatologist with HLA 27 diagnosis
- Topical steroid and NSAID treatment
- Systemic steroid
- Intraocular steroid injections
- Patient:
 - After 6weeks his VA returned to 20/30
 - He told me "What the Fuch's? This eye!"

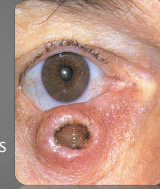
Are you sure?

- 62 yo w/progressive decrease in DVA in OD
 - “My Dr. told me I have keratoconus starting in my 60’s”
 - “I had a bad reaction one morning, painful
- red eye”
- Referred for CXL
- MedHx: Hypertension, Thyroid Dz, Arthritis
- OMHx: None

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Are you sure?

- BCVA
 - OD: -3.00 +2.50 X 77 20/40
 - OS: -.25DS 20/20
- BAT
 - OD: 20/25/30
 - OS: 20/20/25
- Potential Acuity: 20/20 OD & OS
- SLE :
 - K: OD central opacities, OS clear
 - Lens: NSC-OU
 - Fundus:



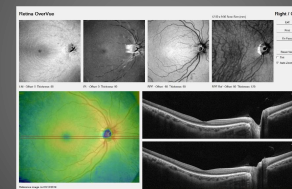
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Rule out abnormal

OptoVue Avanti

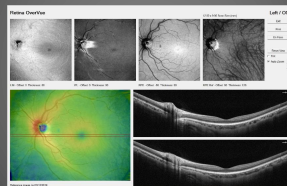
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Optovue Avanti-OD



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Optovue Avanti-OS



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Lid Structure-Lipiview



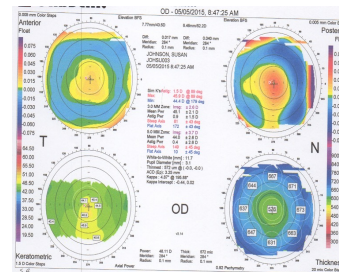
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Topography

Orbscan

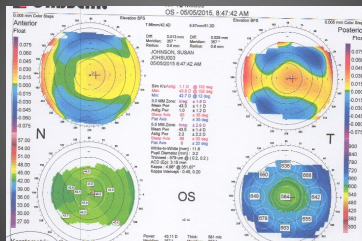
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Orbscan OD



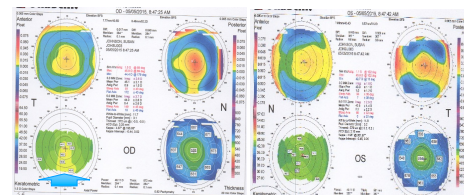
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Orbscan OS



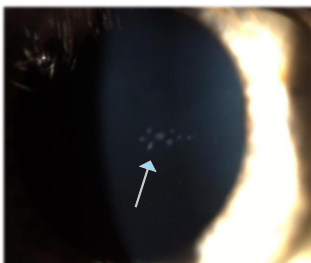
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Asymmetry?

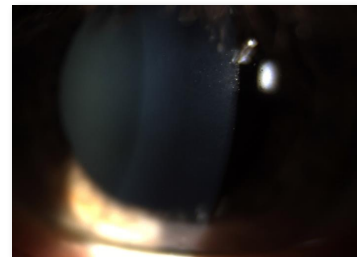


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Right Corneal View

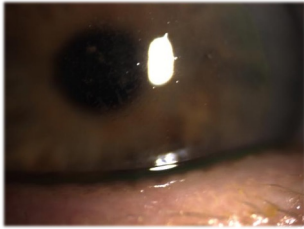


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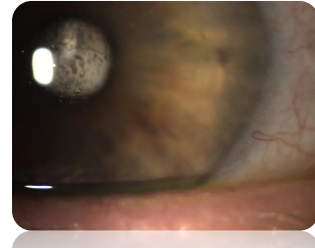
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Epithelial Cells



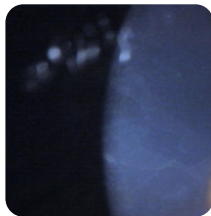
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Epithelial Cells



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But why cells??



EBMD

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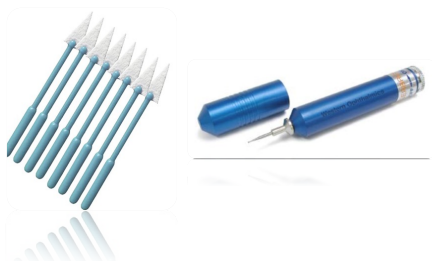
Hx of RCE

- Cornea/Insert Prokera Slim
- Plan:
 - Tape tarsoraphy
 - Zymaxid qid/Prolensa qd/Pred Forte qid
 - RTC:
 - 6 days



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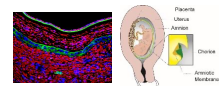
Tools of the trade-Debride



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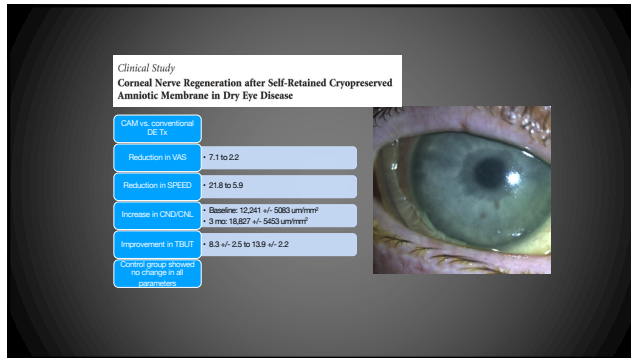
The Amniotic Membrane

- The amniotic membrane is the innermost lining of the placenta (amnion)
- Amniotic membrane shares the same cell origin as the fetus
 - Stem cell behavior
- Structural similarity to all human tissue



6/23/25


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The CRYOTEK™ Method


- Patented and proprietary cryopreservation
- Ensures key active components of the Extracellular Matrix (ECM) are retained
- The only method that retains both:
 - The integrity of the tissue structure
 - The key active (ECM) components
- Safe and effective
 - Supported by over 300 peer-reviewed articles
 - Over 100,000 implanted
- Bio-Tissue Cryopreserved Amniotic Membrane is the ONLY AM granted wound healing indication by the FDA.



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Acellular Amniotic Membrane

- Ready to use immediately
 - No thawing
 - No rinsing
- No up/Down orientation
- Flexible membrane with no ring
- Allows for multiple applications
- Convenient storage at room temperature for 5 years
- WOO-WOO

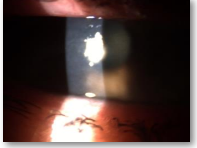


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Prokera Removed



- VAcc 20/25
- "My eye feels great"
- Follow-up in 2 weeks
 - Restasis BID
 - Retaine MGD q1h




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HOLIDAY AT HOLIDAY INN

MAY I HAVE SOME MORE PLEASE?

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SO MANY THOUGHTS...

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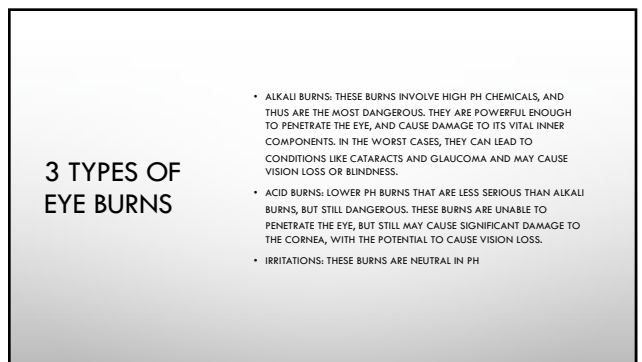
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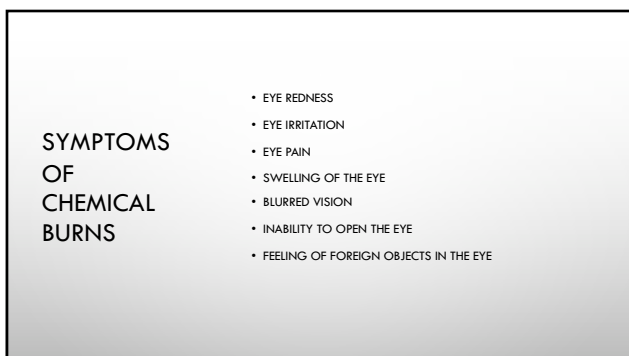
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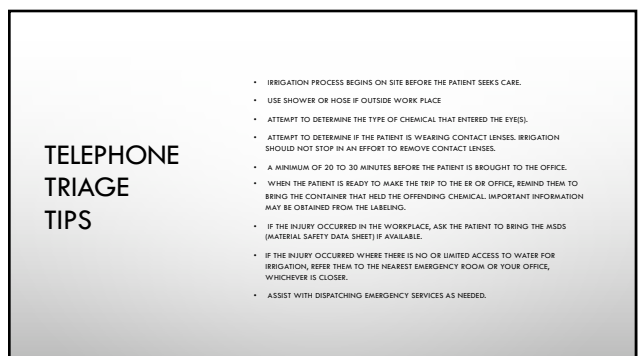
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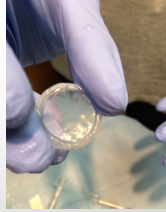
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TREATMENT

- ASSESS THE CORNEA AND CONJUNCTIVA
 - CORNEA INTACT-MILD SPK
 - PROPHYLACTIC ANTIBIOTIC
 - TOPICAL STEROID (LOTEMAX GEL)
 - PRESERVATIVE FREE TEARS
 - CYCLOPSEF FOR PAIN
- CORNEA HAZE/NECROTIC
 - ALL THE ABOVE
 - CONSIDER DERRIDMENT
 - SODIUM ASCORBATE DROPS (10%) Q1H WHILE AWAKE
 - VITAMIN C-1000MG/DAY
 - PROKERA



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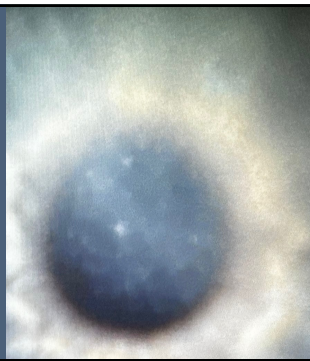
Case

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17 yo Contact Lens

"Felt like something got under my contact"

- 1/18/2024
 - VASC 20/60
 - Superior infiltrate
 - D/C contact, Moxi q2h, PR qid
 - Rx 3 days
- 1/20/2024
 - "My eye feels better"
 - VASC 20/60
 - Trace haze at infiltrate
 - CME, RHC 2 days
- 2/19/2024
 - Seems to be improving
 - VASC 20/100
 - Hx denies using hand water, no organic material
 - Exam with diffuse stromal
 - ANGIOCTIC MEDS: CPM



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17 yo Contact Lens

"Felt like something got under my contact"

- 2/4/2024
 - My eye is really red, heavy and light sensitive
 - VASC 20/60 ph 20/30
 - Superior lid injection, focal infiltrate, with stromal haze
 - Rx Valtrex, Zirgan, D/C Pred
 - Called Corneal Specialist.

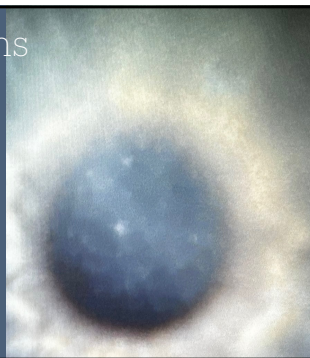


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17 yo Contact Lens

"Felt like something got under my contact"

- 2/4/2024
 - Corneal specialist
 - Cultured, continued anti-viral, Added Durezol TID, Cyclogel 1% TID, Tobrex q2h
 - Denied for culture
- Spoke to Father on 2/4/2024
- **Mycotic Ulcer**
 - Natamycin q1h
 - Voriconazole 200 mg BID po
 - Liposome amphotericin b solution
 - Retinal Ultrasound was negative



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Mycotic Nightmare

Last Exam with Cornea June 4, 2024


- VASC HM
 - Confocal negative
- No ulceration, diffuse new with circumferential at limbus, thick scarring
 - Diffuse NVI
- Tx: Voriconazole 200mg BID PO, Intrastromal Voriconazole and Sub-conj injections
- Natamycin and Pred qid
- Cosopt and Brolin BID (IOP 19mmhg today)
- Diamox 500mg BID po

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Fungal Keratitis
Treatment: A
Comprehensive
Approach




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Etiology



Filamentous fungi
Fusarium, _Aspergillus_, and to a lesser extent, _Curvularia_, are frequently isolated pathogens.



Yeasts
Candida species are more common in immunocompromised patients.



Mode of infection
The mode of infection often involves trauma to the cornea, where fungal spores enter the eye.

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Risk Factors

Contact lens wear
Improper hygiene and extended wear increase susceptibility.


Ocular trauma
Injuries involving organic materials (e.g., plant matter) are particularly risky.

Underlying health conditions
Diabetes mellitus, immunosuppressive therapy, and other systemic illnesses.

Geographic location
Higher incidence in tropical and subtropical climates.



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Diagnosis

1 Clinical examination
Slit-lamp examination to assess corneal integrity and identify fungal elements.
Suppurative, raised infiltrate, feathery borders
Satellite lesions

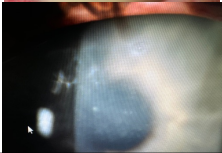
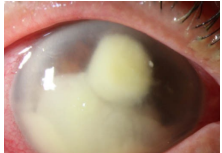
2 Microbiological testing
Corneal scrapings sent for culture and sensitivity tests are essential for confirming the diagnosis

3 Imaging
Optical coherence tomography (OCT) may be used to evaluate the extent of corneal involvement.

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Clinical Presentation

Symptoms	Signs
Eye redness	Corneal opacification
Pain	Infiltrates
Photophobia	Characteristic 'satellite lesion'
Blurred vision	
Excessive tearing	



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Antifungal Medications: The First Line of Defense

1 Topical Antifungals
Natamycin
Voriconazole and Amphotericin B are alternative options.
Intrastromal injections of voriconazole (when confirmed)

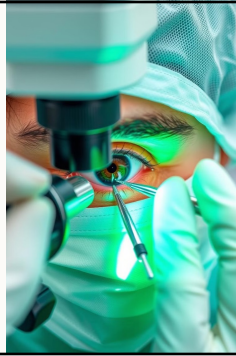
2 Systemic Antifungals
Fluconazole may be prescribed for severe cases. They complement topical treatments.

3 Application Frequency
Hourly in the initial stages. The frequency is adjusted based on response.

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Corneal Debridement: Removing Infected Tissue

- 1 **Assessment**
Evaluate the extent of infection and decide if debridement is necessary.
- 2 **Procedure**
Infected corneal tissue is carefully removed using specialized instruments. Local anesthesia is applied.
- 3 **Post-Procedure**
Antifungal medications are applied. The eye is monitored for signs of healing.



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Surgical Interventions: When Medication Isn't Enough

Corneal Transplant

Replaces the entire cornea. Used for severe scarring or persistent infections.

Therapeutic Keratoplasty

Removes only the infected portion. Healthy donor tissue is grafted.

Post-Surgery Care

Intensive follow-up. Antifungal and immunosuppressive medications are crucial.

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Adjunctive Therapies: Supporting the Healing Process

Topical Steroids

Used cautiously to reduce inflammation. Timing is crucial to avoid exacerbating the infection.

Pain Management

Analgesics may be prescribed to alleviate discomfort associated with the infection and treatments.

Lubricating Eye Drops

Help maintain eye comfort and support the healing process.



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Follow-Up Care: Monitoring Progress

1

Initial Follow-Up

Daily visits may be required to assess treatment response and adjust medications.

2

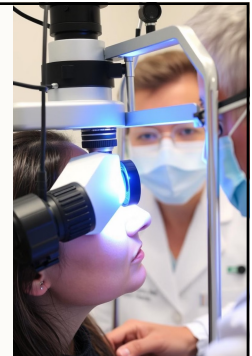
Ongoing Monitoring

Frequency decreases as infection resolves. Corneal healing is closely observed.

3

Long-Term Care

Regular check-ups continue to monitor for recurrence and manage any complications.



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Preventive Measures: Reducing Infection Risk



Hand Hygiene

Wash hands thoroughly before handling contact lenses or touching eyes.



Lens Care

Follow proper cleaning and storage procedures for contact lenses.



Avoid Water Exposure

Don't swim or use hot tubs while wearing contact lenses.



Prompt Treatment

Seek immediate medical attention for any eye injuries or symptoms.

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THANK YOU

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