Ocular Emergencies

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Financial Disclosures

- Alcon-Consultant, Speaker
- Abbvie-Consultant, Speaker
- Dompe-Consultant
- Tarsus-Consultant
- Ocuphire-Consultant
- Oyster Point Pharma-Consultant
- Eyenovia-Consultant
- Orasis-Consultant
- Bausch & Lomb-Speaker & Consultant

What Classifies an Emergency?

- Ocular complaints
- Vision complaints
- Systemic complaints

Optometrists & Emergencies

- How many people visit urgent care/ER for ocular problems?
- Optometrists are best suited to handle eye emergencies
  - Urban/suburban setting
  - Rural setting
  - Going to urgent care vs optometrist
  - Integrated health care model

Office Protocols of emergencies

- Triage training
  - Same day/asap appointments
  - Within 24 hours
  - At earliest convenience
  - At a future date
- Document, Document, Document
- Importance

Taking call as an optometrist

- Required by state? Required by insurance panels?
- Value to the patient

Let’s get to some cases!

Case #1

- 56 year old male
- CC:“right eye hurts”, began 1-2 week ago
- -thinks he scratched eye after removing contact lenses

(+) pain 2/10 severity

(+) photophobia

(+) blurry vision

(+) watering

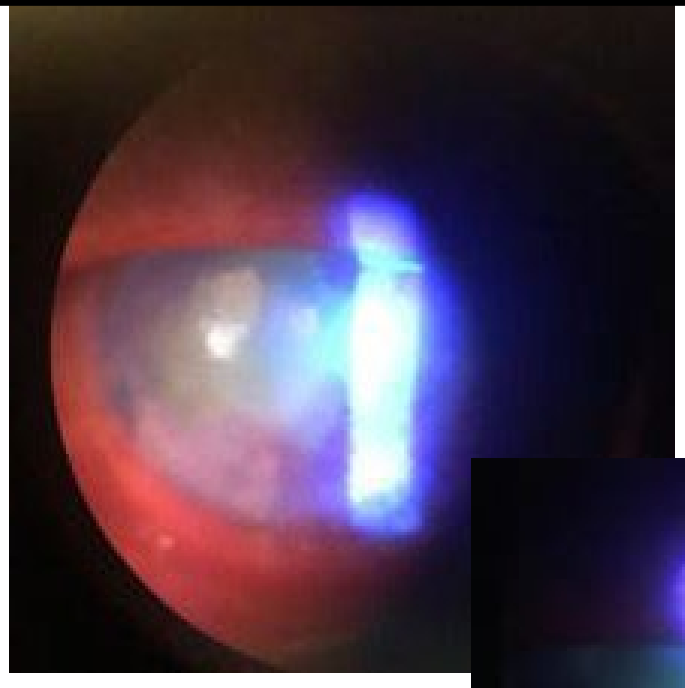
History

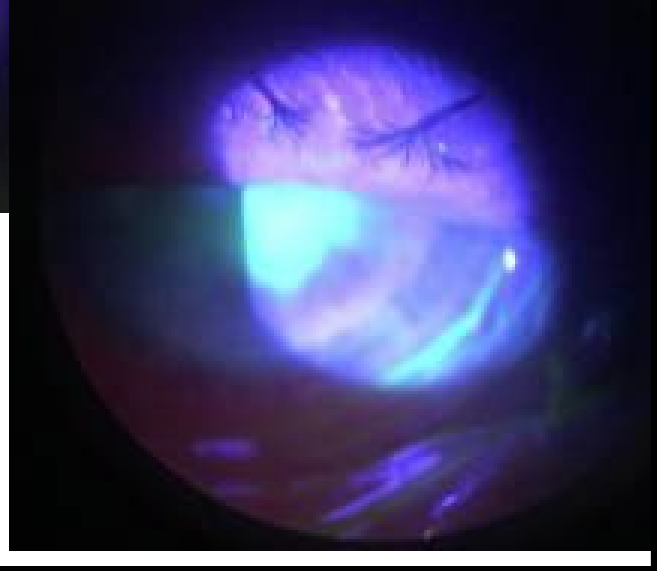
- **Medical history:** Anxiety, Depression, HTN, neuropathy (feet)
- **Medications:** lisinopril, Effexor, Xanax
- **Allergies**: NKDA
- **Ocular history:** unremarkable
  LEE 5 years ago, Monthly MF contact lenses
- **Social history**: 1-2 drinks/week, non-smoker

Entrance Testing

- **BCVA:** HM @ 4ft OD NIPH; 20/30 OS
- **Pupils:** PERRLA, (-)APD
- **Confrontational VF:** grossly full OU
- **EOMs:** Full & Smooth OU, (-)nystagmus
- **IOP:** (iCare) 17 mmHG OD, 16 mmHG OS

	OD	OS
Lids & Lashes	Normal	Normal
Conjunctiva/Sclera	3+ injection	Trace Injection
Cornea	Contact Lens Diffuse edema Central epi defect Neovascularization (0.5mm I & N)	Contact Lens
A/C	Hazy View	Deep & Quiet
Iris	Brown, Grossly normal	Brown, WNL
Lens	Trace NS	Trace NS





Posterior Pole Findings

	OD (Hazy View)	OS
Vitreous	Quiet-no cells	Quiet-no cells
Optic nerve	Pink, healthy rim 0.3/0.3 C/D ratio	Pink, healthy rim 0.3/0.3 C/D ratio
Macula	Flat & clear	Flat & clear
Retina	No breaks/tears	No breaks/tears

Diagnosis

What's your diagnosis?

Corneal abrasion?
Neurotrophic Keratitis?
Corneal ulcer secondary to CL overwear?

Sterile vs Infectious Infiltrate

Sterile	Infectious
Smaller lesion (<1mm)	Larger lesion (>1mm)
Peripheral location	Central location
Minimal epithelial damage	Significant epithelial defect
No mucous discharge	Mucopurulent discharge
Less pain or photophobia	Pain & photophobia
No or minimal A/C reaction	Anterior chamber reaction
No lid involvement	Lid edema, hypopyon

Infectious Infiltrates

- **Viral**=adenovirus, EKC, HSV, HZO
- **Bacterial**=Staphylococcus, Streptococcus, Pseudomonas
  -Contact lenses: *Pseudomonas aeruginosa*
  - *Staphylococcus aureus*
- **Fungal**
- **Protozoan**=*Acanthamoeba*

Contact Lens patient=treat as infectious until proven otherwise

Non-infectious infiltrates

- Marginal corneal infiltrates
- Contact lens-induced acute red eye (CLARE)
- Contact lens-induced peripheral ulcer (CLPU)
- Infiltrative keratitis

Culturing

- **When to Culture:**
  -Large, central ulcer
  -unresponsive to treatment
  -post-surgical, monocular, or immunocompromised
  -3-2-1 Guideline: 3mm size, 2+ ulcers, 1mm visual axis

-**Best to perform culture before initiating treatment**

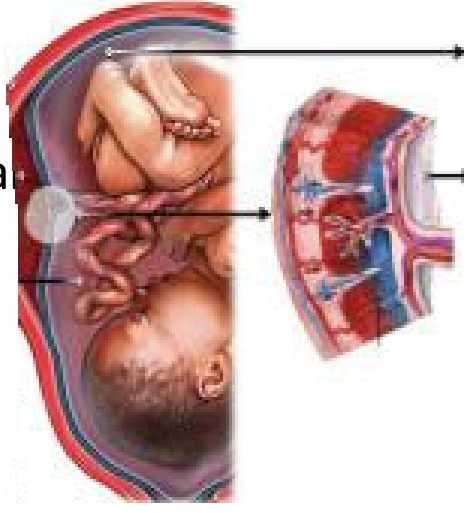
-"**Quick culture**": sterile swab placed in prepared (thioglycolate) broth and sent to lab to be placed on nutrient plates

Treatment

- **Antibiotic**
  - Fluoroquinolones: Gram - & +
  - Aminoglycosides: Gram -
  - Polymixin-B: Gram –
  - Other: erythromycin (G+, some G -), bacitracin (G+), azithromycin (G + & -)
- **Steroid**
- **Amniotic Membranes**

Amniotic Membranes

- derived from placentas
- amniotic membrane (AM)=inner layer of the fetus membranes
- AM contains: structural proteins, specialized proteins, cytokines, growth factors
- MOA poorly understood
- faster healing, less pain, less scarring, less infla
- ocular history
  - 1940 & 1992
  - 700+ peer-reviewed publications on ocular use



Amniotic membrane properties

- Anti-inflammatory
- Anti-fibrotic
- Anti-angiogenic
- Anti-microbial
- Promotes epithelization
- Pro-healing
- Provides matrix for cell migration/proliferation

Amniotic Membrane Types

Cryopreserved

- Harvest: slow freezing at -80 C using DMEM/glycerol preservation media (slow-rate freezing without ice formation)
- FDA approved for wound healing, anti-inflammatory, protective barrier
- Held in place with plastic ring
- Store in freezer

Dehydrated

- Preserved using vacuum with low temperature heat to retain devitalized cellular components
- FDA approved for wound healing
- Stored at room temperature-must be rehydrated to use
- Uses soft contact lens to hold in place

Lyophilized Amniotic Membranes

-XcellerEYES is a lyophilized amniotic membrane

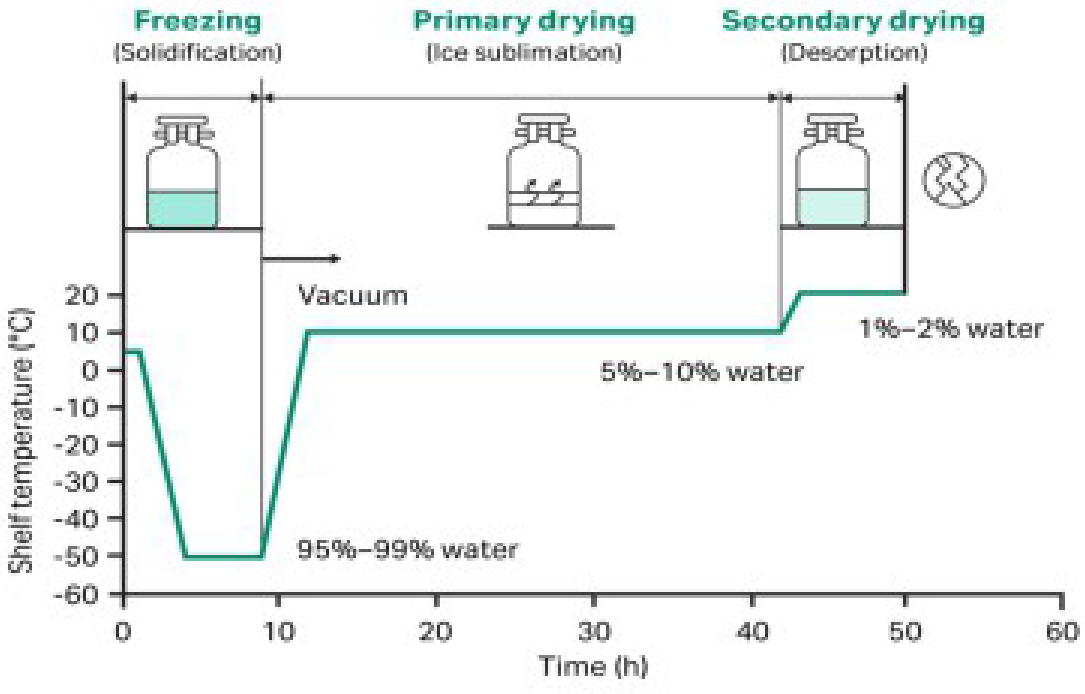
- 350-micron thickness
- White in color and opaque

-Ties in the advantages of a dehydrated membrane (cost, storage, tolerability, etc)ays of application

-Can be applied directly to a bandage contact lens

Lyophilization

- Low temperature
- Minimizes impact on proteins



Corneal Sensitivity

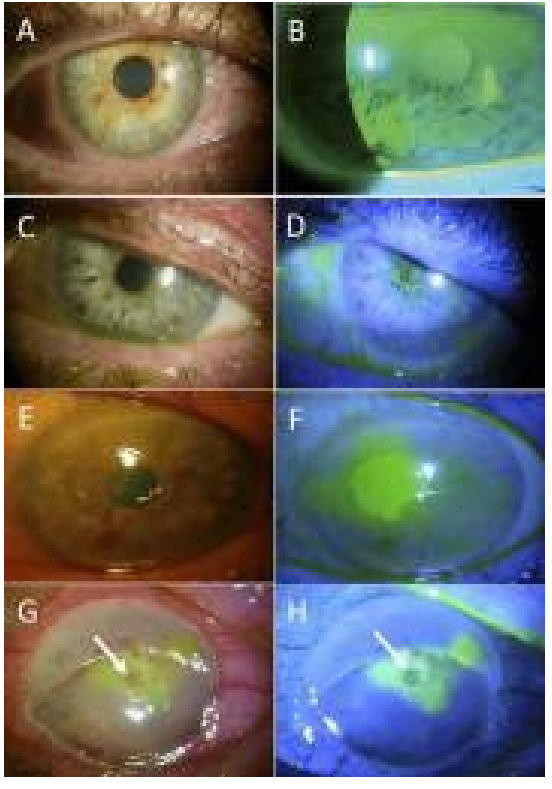
Reduced or Absent

Neurotrophic Keratitis (NK)

- "Stain without Pain" ➔ significant discrepancy between clinical findings & symptoms
- Degenerative corneal condition due to reduced neural innervation
- Risk Factors: infection, injury, or inflammation ➔ trauma, tumors, inflammatory lesions, herpetic infections, chronic corneal exposure, surgical, damage to trigeminal nerve
- Disease progression often unnoticed by the patient

Neurotrophic Keratitis Stages

- Stages I – III
  - Stage 1=general epithelial alterations (A & B)
  - Stage 2=persistent epithelial defects (C & D)
  - Stage 3=corneal ulceration (E & F)
  - Perforation (G & H)



NK Treatment Options

- Amniotic Membranes
- Topical Insulin (1UL/ml)
- Cenergemin-bkbj (0.02%)- Oxervate
- Matrix Therapy Agent
- Surgical Management

Dompé | CONNECT to Care

OXERVATE® PATIENT ENROLLMENT FORM

DC2C

ACCREDO

INSTRUCTIONS:

- **Complete all pages of this form for each new prescription. Please print.**
- **Please fax completed form to Dompé CONNECT to Care at 1-855-263-1775, phone 1-877-422-4412.**
- **Please provide copies of front and back of all insurance cards.**

PATIENT INFORMATION

Name (Last, First, Middle Initial): Date of Birth:

Address: City: State: ZIP:

Preferred Phone: Alternative Phone: Best Time to Call: ☐ Day ☐ Evening

Patient Email: Preferred Language:

SSN (last 4 digits): Gender: ☐ Male ☐ Female

Caregiver Contact Name: Caregiver Contact Phone Number:

Okay to leave message with alternate caregiver/contact? ☐ Yes ☐ No

TREATMENT INFORMATION/PRESCRIPTION (physician to fill out)

Treated Eye (select one): ☐ Left ☐ Right ☐ Both eyes

Stage- Left Eye (select one): ☐ Mild (Stage 1) ☐ Moderate (Stage 2) ☐ Severe (Stage 3)

Stage- Right Eye (select one): ☐ Mild (Stage 1) ☐ Moderate (Stage 2) ☐ Severe (Stage 3)

Check all ICD-10 codes that apply to the treated eye(s):

ICD-10 Codes Check all that apply	Central corneal ulcer	Unspecified corneal ulcer	Neurotrophic Keratoconjunctivitis	Anesthesia and hypoesthesia of cornea	Other
Right eye	☐ H16.011	☐ H16.001	☐ H16.231	☐ H18.811	☐
Left eye	☐ H16.012	☐ H16.002	☐ H16.232	☐ H18.812	☐

Oxervate (cenegermin-bkbj)

- FDA approved in 2018
- cenegermin-bkbj is structurally identical to human Nerve Growth Factor protein made in ocular tissue
- It is a recombinant nerve growth factor (protein)➔this protein activates receptors that allow for differentiation & maintenance of neurons that support the innervation of the cornea
- Dosing: 6Xday (2hr Intervals) for 8 we
- Apply 1st if using ung/gel after
- Wait 15minutes CL insertion
- Can do another round if needed

Case: 56 yo male Corneal Ulcer

- **Treatment**
  - 0.3% ciprofloxacin q30min
  - 1% cycloplegic in office
  - Prokera Slim Amniotic Membrane
  - RTC 1 day

Follow-up

- **1-Day**: Prokera Slim 80% dissolved
  -replaced with new Prokera
  -Continue topical antibiotic q30min
  -RTC 1 day

- **4-day**: 2nd Prokera dissolved
  -resolved infiltrate
  -2+ SPK cornea
  -Taper topical antibiotic to qid
  -Start 1% pred acetate q2hr
  -copious PF ATs
  -RTC 2 days

Follow-up

- **6-Day**:
  -1+ SPK
  -D/C topical antibiotic
  -Decrease 1% pred acetate qid & increase PF ATs
  -RTC 3 day

- **10-day**:
  -trace SPK
  -BCVA 20/25-
  -IOP stable
  -small central epithelial scar

Case Study 2

- 25 yo AA Male
- **CC:** " blurry vision with black spots"

- **HPI:**
  - Sudden, painless decrease in vision OS
  - Onset: 4 days, upon awakening
  - (+) flashes of light and floaters X 4 days OS

History

- **Medical history:** (+) epilepsy, (-)STDs, (-)inflammatory conditions

- **Medications:**
  - Visine BID OU
  - 100 mg phenytoin sodium TID PO

- **Ocular history:** Blind OD (eye trauma from >10yrs ago)

- **Social history:** (-)smoking, EtOH, drug use

Entrance Testing

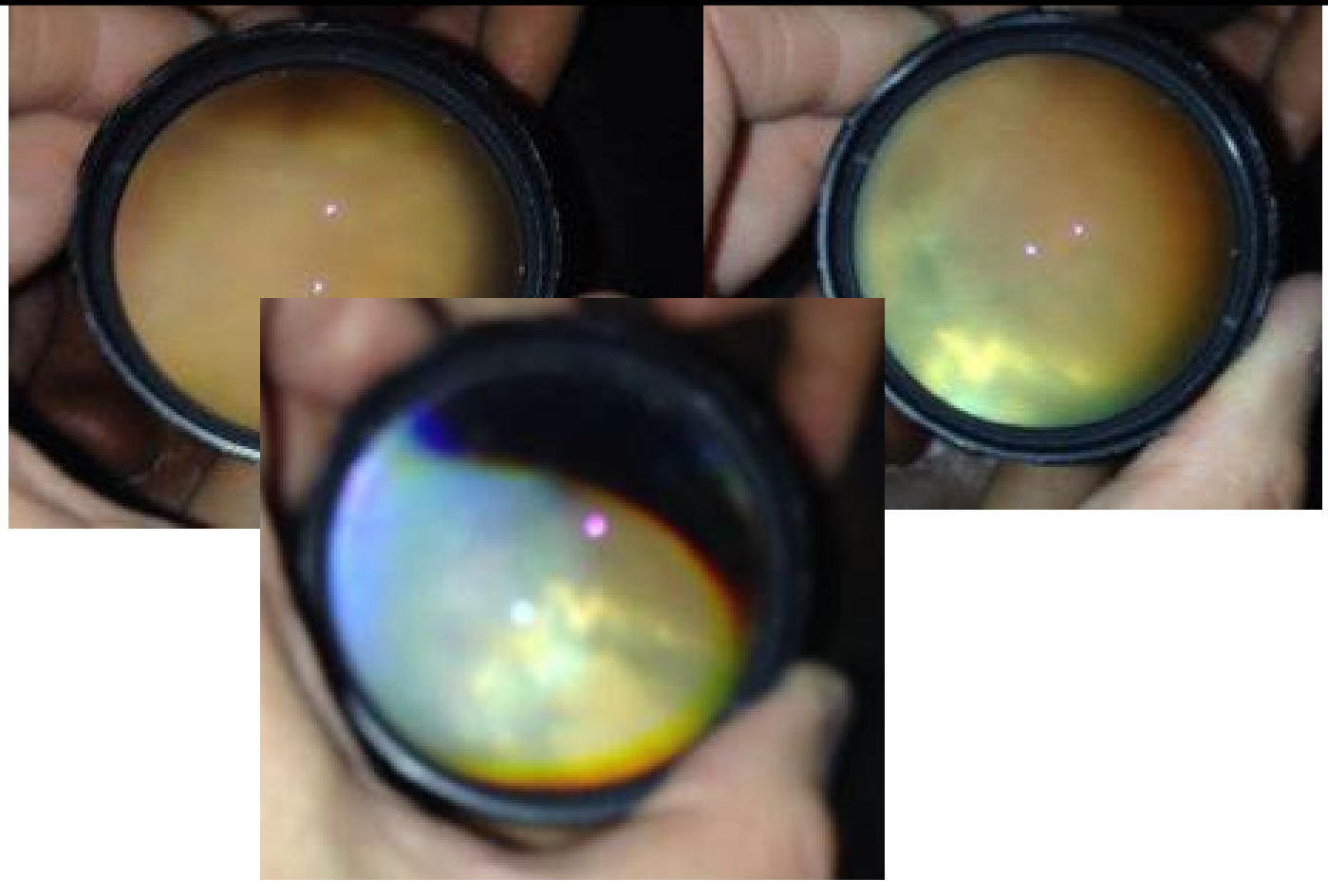
- **BCVA:** NLP OD; 20/200 NIPH OS
- **Pupils:** fixed, miotic OD; round, minimal reactivity OS
- **Confrontational VF:** I & T constriction OS
- **EOMs:** Full & Smooth OU

Slit Lamp Findings

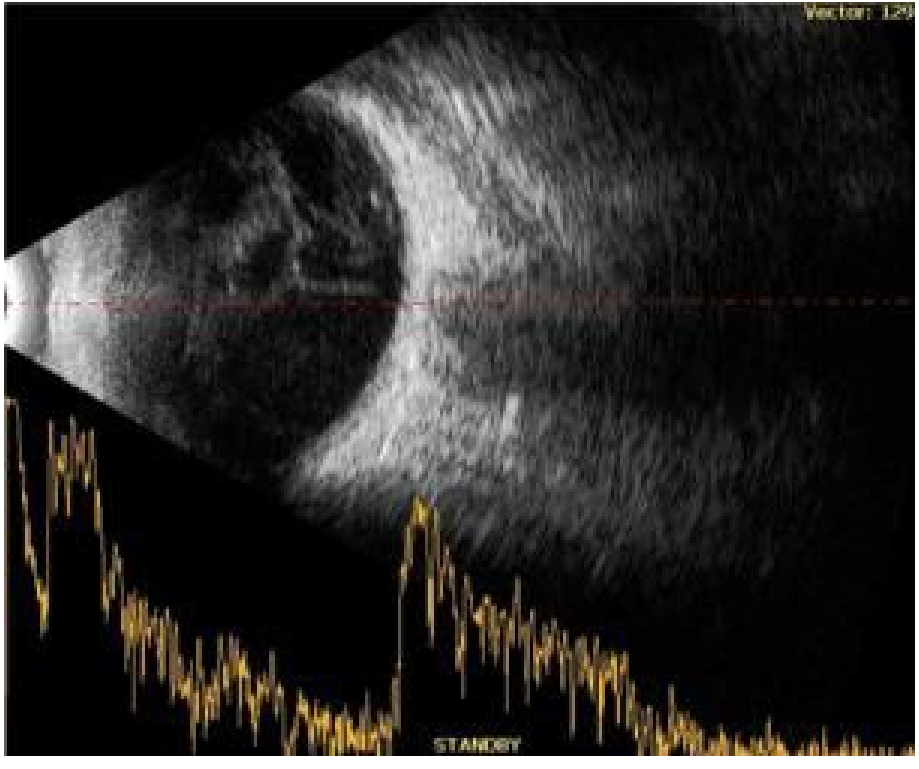
Cornea	WNL	Edema 3+ guttata **inferior KPs**
A/C	**Quiet** irido-corneal touch	**4+ cells/3+ flare** (-)hypopyon
Iris	Atrophy	I, IT, ST synechiae
Lens	Displaced w/PS	4+ pigment AC
Vitreous	No view	(+)cells-hazy view of post pole

Clinical Exam

- **IOP:** 7 OD/10 OS (mmHG)
- **Gonioscopy:** PAS OS
- **DFE:**
  - OD: no view (dense cataract)
  - OS: photo



B-Scan: OD



Differential diagnosis

- Sympathetic ophthalmia
- Sarcoidosis
- Syphilis
- Tuberculosis
- HIV/AIDS

Case Management

- 1% PA Q1hr & 1% Atropine BID OS
- Lab Work-up
- Uveitis specialist referral

Diagnostic Testing

- **Labs:**
  - FTA-ABS (inconclusive)
  - (+)RPR, TP-PA
  - (-) HIV, HSVI IgG, HSV II IgG, HSV IgM, Lyme, EBV, WNV, Quantiferon
  - Unremarkable CSF & CXR

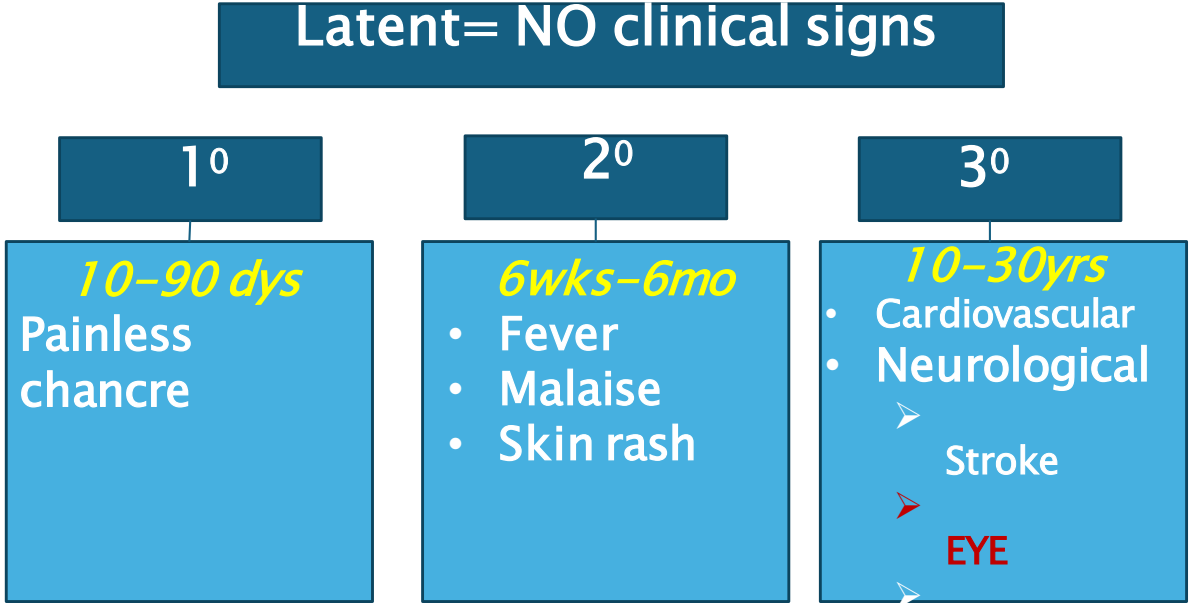
Diagnosis

Syphilitic Panuveitis

Treatment

- Hospitalized
- 60mg prednisone PO QD
- 24 million units/day IV aqueous PCN X 10 days

Acquired Syphilis Stages:



Neurosyphilis Tx (CDC Guidelines)

Ocular disease = Neurosyphilis

1. Aqueous PCN G 18-24 million units/day IV x 10-14 days
   - Alt: Procaine PCN 2.4 million units/day IM x 10-14 days <u>PLUS</u> PO Probenecid 500 mg QID x 10-14 days

2. CSF examination & HIV testing

3. Repeat LP Q6mo X 2 yrs

Post-Ab Treatment

- VA 20/100, PH 20/50 OS
- Essential Resolution of Uveitis & Vitritis
- F/U on going

Case 3

- 67 year old, Caucasian male

- **HPI**: “can’t see out of right eye”, started 2 days ago
- (-) pain
  (+) headache-right side of head
  (+) blurry vision-right eye only
  (+) fatigue, pain around back of neck X 2 wks, scalp tenderness
  (-) jaw pain/claudication

History

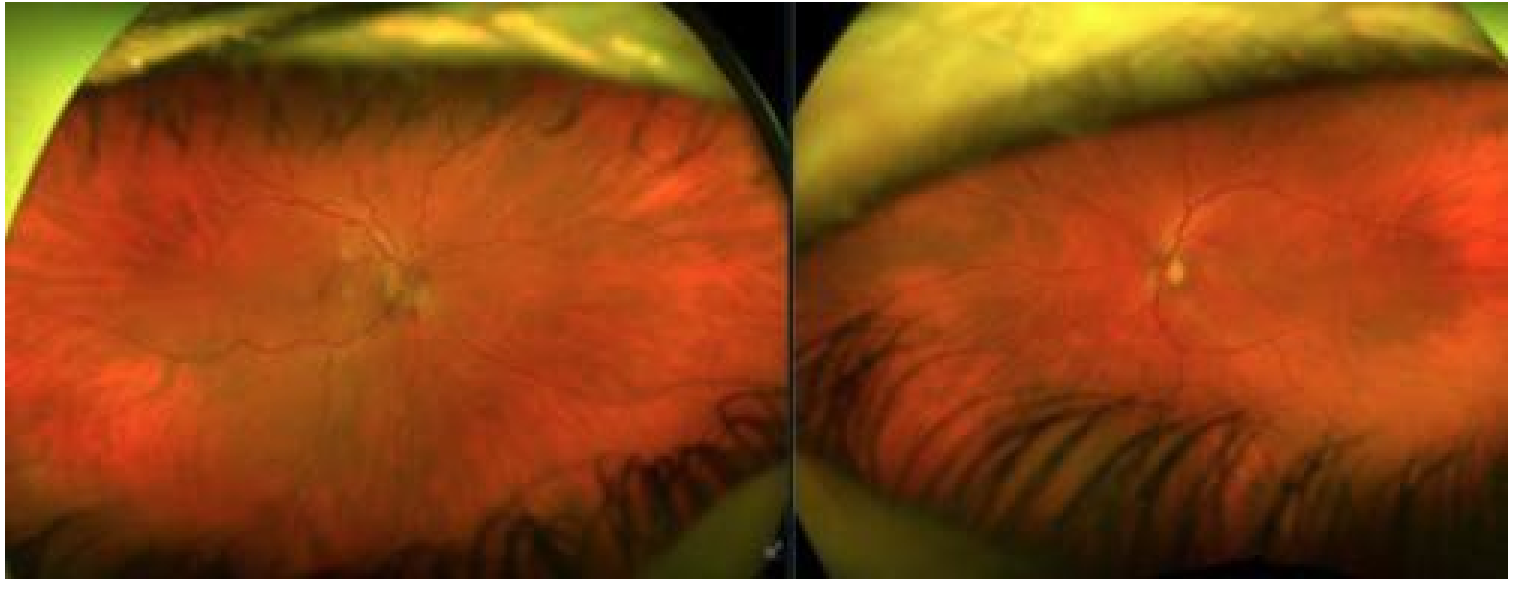
- **Medical history:** unknown, LME 10+ yrs ago
- **Medications:** none
- **Allergies**: NKDA
- **Ocular history:** unremarkable
  LEE 2yr ago, cataracts
- **Social history**: (-)EtOH, non-smoker

Entrance Testing

- **BCVA:** HM @ 4 ft OD, 20/30 OS
- **Pupils:** PERRLA, (+)APD OD
- **Confrontational VF:** restricted OD, grossly full OS
- **EOMs:** Full & Smooth OU, (-)nystagmus
- **IOP:** (NCT) 10 mmHG OU

	OD	OS
Lids & Lashes	Normal	Normal
Conjunctiva/Sclera	Trace injection	Trace Injection
Cornea	Clear	Clear
A/C	Deep & Quiet	Deep & Quiet
Iris	Brown, WNL	Brown, WNL
Lens	2+ NS	2+ NS

Posterior Pole Findings



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Diagnosis

- **Differential Diagnoses:**
  - Headache/migraine
  - NAION, AAION, Optic Neuritis, papilledema or pseudotumor cerebri

What's your Diagnosis?

- **Diagnosis:** Arteritic ischemic optic neuropathy (AION)- Giant Cell arteritis (GCA)
- **3 Criteria for (American College of Rheumatology) Classification of GCA:**
  -Age of onset >50yrs or older
  -Onset of new headache
  -Temporal artery abnormality (tender or reduced pulsation)
  -Elevated ESR (>50mm/hr Westergren)
  -Abnormal artery biopsy showing necrotizing vasculitis with predominant monocular cell filtration or granulomatous inflammation

Treatment

- **ER**➔CBC, ESR, CRP, FBS, FTA-ABS, ANA
  - ESR >100mm/hr
  - CRP 33mg/L
  - Normal neuroimaging
  - Order Temporal Artery Biopsy
- **Rheumatology consult**
- **Vascular Surgeon** ➔Temporal Artery Biopsy confirmed GCA
- **Neuroimaging**➔ rule out intracranial process
- **Steroids** ➔ IV - 1g methylprednisolone sodium succinate X 3 days then 80mg oral prednisone

1 week follow-up

- Resolution of headaches, pain, fatigue
- No change in optic nerve edema
- Vision decreased to LP
- Rheumatology for GCA management

2 week follow-up

- Resolved optic nerve edema, improved perfusion
- VA: NLP OD - no improvement to-date, 20/30 OS

Giant Cell Arteritis

- Most common vasculitis adults >50 years
- Incidence 18 per 100,000; Women 4X more likely
- Highest prevalence in Caucasians (Scandinavian or Northern European decent)
- Granulomatous inflammatory vasculopathy affecting medium & large sized arteries
- External carotid branches, ophthalmic, vertebral, distal subclavian & thoracic aorta
- >50 yo, females > males
- **Goal: recognize & treat GCA before AION occurs**

Symptoms

- Headache/scalp tenderness
- Temple artery tenderness
- Neck pain
- Weight loss
- Jaw claudication
- Weakness
- Fatigue
- Tongue/scalp necrosis
- Unexplained fever

AAION (arteritic anterior ischemic optic neuropathy)

- Most common cause of severe vision loss from GCA
- Infarction of short posterior ciliary arteries that supply optic nerve
- 1 in 5 GCA patients will develop monocular vision loss related to AAION
- 1/3 patients amaurosis fugax present as sign of impending AION
- Vision loss severe & responds poorly to treatment
- If untreated, 50% lose vision in fellow eye within days to weeks of onset
- **TRUE OCULAR EMERGENCY**

- **Acute phase → ON appear swollen & pale, flame hemes**
- **Later → no edema, optic atrophy sets in**

Arteritic AION	Non-arteritic AION
“older” patient population	“younger”patient population
Female > male	No relation
HA, scalp tenderness, jaw claudication	Occasional orbital pain
Better VA	Worse VA
FFA: choroidal & disc filling delay	Disc filling delay
Poor prognosis for recovery; fellow eye 95% cases	3 line VA improvement in 43% cases; fellow eye <30% cases
Urgent corticosteroid treatment	Doubtful role of corticosteroids

ESR

- Measures height of RBC's settling out of plasma per hour
- Male Norm: age/2
- Female Norm: age + 10 /2

GCA Ocular Manifestations

- Cranial nerve involvement (CN VI)➔diplopia
- Cotton wool spots
- Central Retinal artery occlusion (CRAO)
- Visual Field defect (altitudinal, arcuate, cecocentral scotoma)
- Choroidal infarction
- Nystagmus/internuclear ophthalmoplegia
- Rare=anterior segment neovascularization/ocular ischemic syndrome

GCA

- **Actemra (tocilizumab)** =2017 FDA expanded & approved use of subcutaneous Actemra (tocilizumab) to treat adults with GCA
  - subcutaneous
  - First FDA approved therapy specific to this type of vasculitis

- **Polymyalgia Rheumatica (PMR)**
  - Systemic autoimmune disease
  - Shoulder & hip girdle pain
  - 50% GCA patients also have PMR
  - Controversy: GCA & PMR separate or different manifestations of same disease

GCA Clinical Pearls

- **Thorough case history**
- **Prompt treatment=start tx before lab results are back**
  - If aggressive steroid tx initiated within first 24hrs of onset of visual symptoms, 50% chance of vision improvement
  - Temporal biopsy should be done within 1 week of starting steroid tx
  - Beware of normal labs
    - 15-30% patients with (+) temporal artery biopsies have normal ESR
    - Biopsy temporal artery 5-9% false negative rate due to skip lesions

Case #4

- 43 year old male, mechanic

- **HPI**: “battery acid exploded into right eye”, immediately felt pain
- -no improvement after irrigation with tap water
- (+) pain 9/10 severity
  (+) photophobia
  (+) blurry vision
  (+) watering

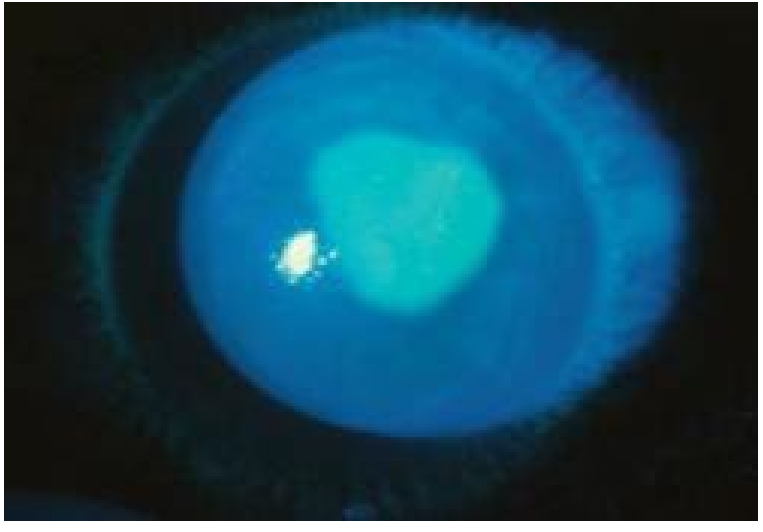
History

- **Medical history:** hypothyroidism
- **Medications:** levothyroxine
- **Allergies**: Penicillin (hives)
- **Ocular history:** unremarkable
  LEE 4mo ago, glasses full time, daily disposal CLs prn
- **Social history**: 5 drinks/week, "social smoker"

Entrance Testing

- **BCVA:** 20/400 OD NIPH; 20/20 OS
- **Pupils:** PERRLA, (-)APD
- **Confrontational VF:** grossly full, inconsistent responses in OD
- **EOMs:** Full & Smooth OU, (-)nystagmus
- **IOP:** (iCare) 12 mmHG OD, 12 mmHG OS

	OD	OS
Lids & Lashes	Erythematous upper & lower lid	Normal
Conjunctiva/Sclera	2+ injection; 1+ chemosis	White & Clear
Cornea	See photo	Clear
A/C	Deep & Quiet	Deep & Quiet
Iris	Green, Grossly normal	Green, WNL
Lens	Clear	Clear



Posterior Pole Findings

	OD	OS
Vitreous	Clear	Clear
Optic nerve	Pink, healthy rim 0.2/0.2 C/D ratio	Pink, healthy rim 0.3/0.3 C/D ratio
Macula	Flat & clear	Flat & clear
Retina	No breaks/tears	No breaks/tears

What do you do next?

pH of Tears

- At arrival: 6
- After irrigation of normal saline (15min)
- **What is the normal range for tears?**

Diagnosis

Differential Diagnosis:

-Corneal abrasion (mechanical trauma, foreign body, etc)

-Corneal Infections (viral, bacterial, fungal)

What is your Diagnosis?

Diagnosis:

Corneal chemical Burn OD

Types of Chemical Burns

- **Neutral (Pepper Spray)**
- **Acidic**
  - Bind with tissue proteins causing coagulation ➔ stops further penetration
  - Usually less harmful
  - Exception: hydrofluoric acid
- **Alkali**
  - Lipophilic ➔ penetrate ocular tissues more quickly & deeper
  - Penetrates corneal stroma via saponification of fatty acids in cellular membranes
  - Damaged Stromal Tissue➔ proteolytic enzymes released ➔ liquefactive necrosis

Acidic Agents (pH <4)	Alkali Agents (pH >10)
Sulfuric Acid (Car batteries)	Ammonia (cleaning agents, fertilizers, refrigerants)
Acetic Acid (Vinegar)	Lye (drain & oven cleaners, air bags)
Hydrochloric Acid (swimming pool cleaner)	MgOH (Firework sparklers, flares)
Nail polish	Lime (plaster, mortar, cement, white wash)
	Mixed cement
	Ammonia

Acidic Agents (pH <4)	Alkali Agents (pH >10)
Sulfuric Acid (Car batteries)	Ammonia (cleaning agents, fertilizers, refrigerants)
Acetic Acid (Vinegar)	Lye (drain & oven cleaners, Drano, air bags)
Hydrochloric Acid (swimming pool cleaner)	MgOH (Firework sparklers, flares)
Nail polish	Lime (plaster, mortar, cement, white wash)
	Mixed cement
	Ammonia


pH Levels of Common Household Cleaners
from the spruce
Cleaner
pH level
Chlorine Bleach
11 ~ 13
Tub & Tile Cleaner
11 ~ 13
Borax
10
Mild Dish Soap
7~8
Vinegar
3
Toilet Bowl Cleaner
1 ~ 3
BORAX
DISH SOAP
Chlorine BLEACH

Irrigation

-damage can happen within 5 minutes

-begin immediately after splash occurs

-irrigate over CLs

-eye wash station, shower, outdoor hose

-pH levels often normalize within 30min of continuous irrigation (at least 32oz)

-triaging

Treatment & Management

- Stabilize ocular surface pH
- Slit Lamp Examination
  - Lids, cornea, limbus, conjunctiva, adnexa
- IOP

Treatment Goals

- **prevent infection** ➔ broad-spectrum antibiotic
- **promote re-epithelialization** ➔ debridement
- **control inflammation** ➔steroid
- **minimize sequelae** ➔ cycloplegic, anti-glaucoma therapy

Roper-Hall Classification

Grade	Prognosis	Cornea	Conjunctiva/Limbus
I	Good	Corneal epithelial damage	No limbal ischemia
II	Good	Corneal haze, iris details visible	<1/3 limbal ischemia
III	Guarded	Total epithelial loss, stromal haze, iris details obscured	1/3 to ½ limbal ischemia
IV	Poor	Cornea opaque, iris and pupil obscured	>1/2 limbal ischemia

Grade I Treatment

- Steroid (1% prednisolone acetate qid)
- Topical antibiotic ung (erythromycin qhs to qid)
- Preservative-free artificial tears
- Cycloplegic for pain

Grade	Prognosis	Cornea	Conjunctiva/Limbus
I	Good	Corneal epithelial damage	No limbal ischemia

Grade II & III Treatment

- Topical antibiotic (fluoroquinolone) qid
- Topical steroid q1hr while awake (may need to taper)
- Long-acting cycloplegic (1% atropine)
- Oral pain medication prn
- Oral doxycycline to reduce corneal melting through MMP inhibition
- Oral vitamin C (1,000-2,000 mg) qid
- Sodium ascorbate drops (10%) whil e
- Preservative-free artificial tears prn
- Debridement of necrotic tissue
- Amniotic membrane

II	Good	Corneal haze, iris details visible	<1/3 limbal ischemia
III	Guarded	Total epithelial loss, stromal haze, iris details obscured	1/3 to ½ limbal ischemia

Grade IV Treatment

- Stem cell transplantation
- Penetrating keratoplasty
- Keratoprosthesis
- Tenoplasty to re-establish limbal vascularity

IV	Poor	Cornea opaque, iris and pupil obscured	>1/2 limbal ischemia

Long Term Complications

- poor vision
- corneal scarring
- xerophthalmia
- dry eyes
- symblepharon
- glaucoma
- uveitis
- cataract
- adnexal abnormalities (lagophthalmos, entropion, ectropion and trichiasis)

Case 1: 43 yo male

- **Treatment**
  - 0.3% ciprofloxacin qid
  - Erythromycin ung qhs
  - 1% pred acetate q2hr
  - 1% cycloplegic tid
- **Follow-up**
  - RTC 1 day
  - Complete resolution 6 days
  - BCVA after resolution: 20/20

Staff Triaging

- -Preliminary irrigation take place on site immediately
- -irrigate eye for 20-30min before coming to office
- -irrigate over contact lenses
- -bring container of chemical or MSDS card
- -Time is critical
- -Document, document, document

Corneal Burn Clinical Pearls

- Stabilize pH (acidic vs alkaline)
- Thorough case history & examination
- Watch IOP
- Prevent infection
- Control Inflammation
- Minimize sequelae

Thank you!

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