

EYE CATCHING CASES

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Financial Disclosures

- I do not have any financial interest in any of the parts of the lecture today.

Objectives

- Review some of the common and uncommon cases seen in optometric practice
- Discuss key elements of examination and ancillary testing for proper diagnosis
- Discuss management of these pathologies and referral when appropriate

A COMPLICATED CORNEA...AND MORE

COMPLICATED CORNEA

HISTORY

- 33 year old Hispanic Female
- CC: Here for cataract evaluation
 - LEE: 6 months ago – no mention of cataract
 - Progressively decreasing vision over last year
 - Light sensitivity and glare with sunlight and night driving
 - Itching and irritation after spraying insecticide in eyes 10 days ago
 - Went to ER – eyes were irrigated extensively, no drops prescribed.
 - Improving symptoms with AT's and cool compresses
- Past Medical Hx
 - High cholesterol
- Past Ocular Hx
 - None
- Family Hx
 - No blindness, glaucoma or AMD

COMPLICATED CORNEA

EXAM

- VA
 - OD: 20/100
 - OS: 20/80
- Current Glasses
 - OD: -6.50 -2.50x043
 - OS: -3.50 -4.75x097
- Keratometry
 - OD: 47.25 / 50.50 @ 146
 - OS: 48.50 / 55.00 @ 30
- Manifest Refraction
 - OD: -7.75 -3.50x065 20/70
 - OS: -5.50 -3.75x089 20/80

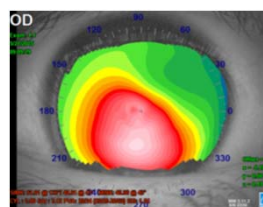
COMPLICATED CORNEA

EXAM

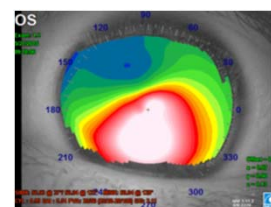
- | | |
|--|--|
| □ Adnexa <ul style="list-style-type: none"> ■ WNL OD/OS | □ Optic Disc <ul style="list-style-type: none"> ■ C/D: 0.30 OD/OS ■ No edema or pallor |
| □ Conjunctiva <ul style="list-style-type: none"> ■ 1+ papillae ■ Trace injection | □ Macula <ul style="list-style-type: none"> ■ Normal OD/OS |
| □ Cornea <ul style="list-style-type: none"> ■ Munson's Sign OD/OS ■ No striae, no scarring OD/OS | □ Vessels <ul style="list-style-type: none"> ■ Normal OD/OS |
| □ A/C <ul style="list-style-type: none"> ■ Deep quiet OD/OS | □ Periphery <ul style="list-style-type: none"> ■ No holes/tears RD OD/OS |
| □ Lens <ul style="list-style-type: none"> ■ Clear OD/OS | |

COMPLICATED CORNEA

TOPOGRAPHY AND SCLERAL



Scleral Contact Lens:
BC: 49.00
Dia: 15.6
Power: -10.25
VA: 20/25



Scleral Contact Lens:
BC: 50.00
Dia: 15.6
Power: -13.00
VA: 20/25

COMPLICATED CORNEA

SCLERAL FITTING #2

- OCT 2017 (2 ½ Years later)
- Blurry vision, film over contacts
 - ▣ Filling scleral lens with multipurpose solution
- VA (w/scleral)
 - ▣ 20/300
 - ▣ 20/70

COMPLICATED CORNEA

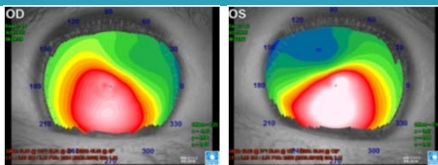
SCLERAL FITTING #2

- Adnexa
 - ▣ WNL OD/OS
- Conjunctiva
 - ▣ 1+ papillae
- Cornea
 - ▣ Munson's Sign OD/OS
 - ▣ No striae, no scarring OD/OS
- A/C
 - ▣ Deep quiet OD/OS
- Lens
 - ▣ Clear OD/OS
- Optic Disc
 - ▣ C/D: 0.30 OD/OS
 - ▣ No edema or pallor
- Macula
 - ▣ Normal OD/OS
- Vessels
 - ▣ Normal OD/OS

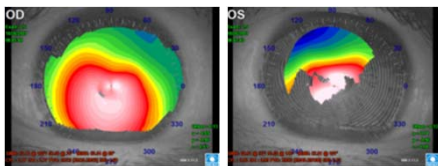
COMPLICATED CORNEA

TOPOGRAPHY COMPARISON

MAY
2015



OCT
2017



COMPLICATED CORNEA

SCLERAL FITTING #2

2015

- OD:
- BC: 49.00
 - Dia: 15.6
 - Power: -10.25
 - VA: 20/25

- OS:
- BC: 50.00
 - Dia: 15.6
 - Power: -13.00
 - VA: 20/25

2017

- OD:
- BC: 52.00
 - Dia: 15.6
 - Power: -13.50
 - VA 20/20

- OS:
- BC: 54.00
 - Dia: 15.6
 - Power: -16.50
 - VA: 20/20

COMPLICATED CORNEA

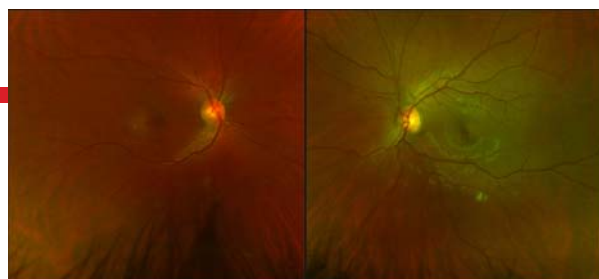
SCLERAL DISPENSE #2

- Scleral Dispense (5 months later)
 - ▣ 20/40 OD
 - PH 20/25
 - Plano Over-refraction
 - Good fit and comfort
 - ▣ 20/20 OS
 - Good fit and comfort
 - ▣ F/U 1 month

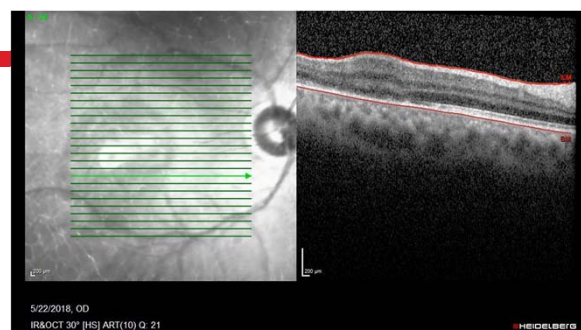
COMPLICATED CORNEA

...AND MORE

- Scleral F/U –2 months
 - ▣ 20/80 OD
 - distortion to left side of fixation
 - OR: Plano
 - Fitting: good clearance, limbal and edge fit
 - ▣ 20/20 OS



- OD: flat, round, grey subretinal lesion under macula
- OS: WNL



COMPLICATED CORNEA

...AND MORE

□ Differential Diagnosis

- ▣ Myopic CNVM
- ▣ AMD CNVM
- ▣ Ocular Histoplasmosis
- ▣ Multifocal Choroiditis
- ▣ Idiopathic CNVM

COMPLICATED CORNEA

...AND MORE

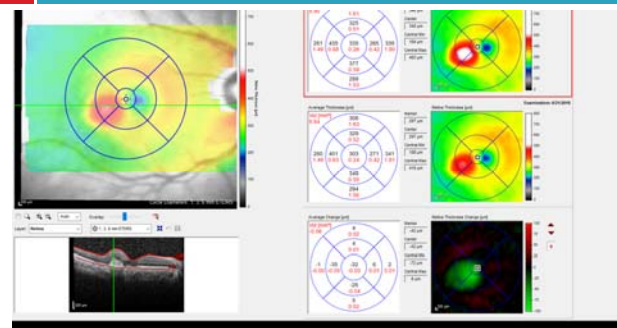
□ Suspected Myopic CNVM

- ▣ Referred to retina clinic
 - ▣ IVA
 - ▣ F/U 1 month
- ### □ Retina F/U (1 Month)
- ▣ 20/60 with scleral lens
 - ▣ Improved vision and distortion
 - ▣ IVA #2
 - ▣ F/U 1 month



COMPLICATED CORNEA

...AND MORE



MYOPIC CNVM

RISK FACTORS

- Pathological myopia
 - Spherical equivalent $> -6D$
 - Axial length $> 26.5mm$
 - Tessellated Fundus
 - Posterior Staphyloma
 - Fuch's Spot
 - RPE Atrophy (Patchy $>$ Diffuse)
 - Lacquer Cracks



MYOPIC CNVM

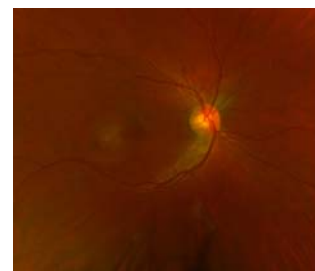
PATHOLOGY

- Lacquer cracks induce intracellular changes in RPE that release VEGF
- Mechanical stretching of RPE cells up-regulates pro-angiogenic factors, including VEGF
- New vessels grow thru breaks in Bruch's membrane (Lacquer cracks) or result from an atrophic area within the RPE

MYOPIC CNVM

EXAM

- Highly myopic patient with sudden decrease in VA (20/40 to 20/100) or onset of metamorphopsia
- Small ($< 1DD$) flat, greyish subretinal membrane



MYOPIC CNVM

TREATMENT

- Anti-VEGF
 - ▣ Lucentis = Eylea = Avastin
- Average improvement in BCVA was 13.8 letters after 12 months

MYOPIC CNVM

PEARLS

- ~30% will develop mCNVM in the other eye
- Early detection and treatment is key
- Don't forget about pathological myopia and CNVM in high myopes
 - ▣ Educate on risk factors
 - ▣ Amsler Grid

OPTIC DISC DILEMMAS

OPTIC DISC DILEMMAS

Case #1

- 42 year old, white male
- CC: blurry distance vision; headaches with extended periods of computer work and reading
- Ocular Hx: unremarkable
- Medical Hx: unremarkable
- Medications: None

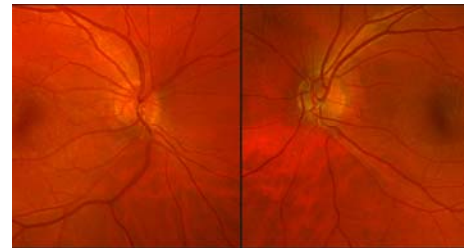
OPTIC DISC DILEMMAS

Case #1

- | | |
|----------------------|----------------------|
| □ MR: +0.25-0.50x135 | □ MR: +0.75-1.00x060 |
| □ 20/20 | □ 20/20 |
| □ SLE: unremarkable | □ SLE: unremarkable |
| □ DFE: | □ DFE: |
| □ <0.10 | □ <0.10 |
| □ Elevation 360 | □ Elevation 360 |
| □ Sharp disc margins | □ Sharp disc margins |
| □ No pallor | □ No pallor |

OPTIC DISC DILEMMAS

Case #1



- | | |
|----------------------|----------------------|
| □ OD | □ OS |
| □ <0.10 | □ <0.10 |
| □ Elevation 360 | □ Elevation 360 |
| □ Sharp disc margins | □ Sharp disc margins |
| □ No pallor | □ No pallor |

OPTIC DISC DILEMMAS

Case #2

- 11 year old, white female
- CC: referred for exam due to result of convergence insufficiency survey at school
- Headaches when she reads
 - 2-3x per week
 - Forehead and brow area
 - Relieved with ibuprofen
 - Do not disrupt daily activities
- Medical Hx: Unremarkable
- Medications: None

OPTIC DISC DILEMMAS

Case #2

OD:

- VA: 20/20 sc
- Pupils: PERRL, no APD
- EOM: smooth and full
- Binocular Vision
 - CT: 4 XP
 - NPC: nose
 - Amps: 13
 - BO: 20/25/20
- Cyclo MRx: Plano -0.75x010
- SLE: WNL
- DFE:

OS:

- VA: 20/20 sc
- Pupils: PERRL, no APD
- EOM: smooth and full
- Binocular Vision
 - CT: 4 XP
 - NPC: nose
 - Amps: 14
 - BO: 20/25/20
- Cyclo MRx: Plano -0.25x175
- SLE: WNL
- DFE:



OPTIC DISC DILEMMAS

Case #3

- 36 year old white female
- CC: vision will turn all white sometimes
 - Patient passed out and fell onto face 6/1/18 (3 months ago)
 - Headache starting at the base of the neck and extending thru right temple and behind right eye
 - Exacerbated by stress and activity
 - Variable pain from 4-8
 - Present daily
 - Improved with use of Excedrin
 - Episodes of vision turning white, this will last a few seconds and then return to normal
 - Occurs multiple time per day
- Medical Hx
 - Unremarkable
- Radiology
 - C/T done at ER was normal per patient; no MRI performed
- Medications:
 - Tramadol
 - Metaxalone
- Vital Signs
 - BP: 148/85
 - BMI: 35.2 (Obesity)

OPTIC DISC DILEMMAS

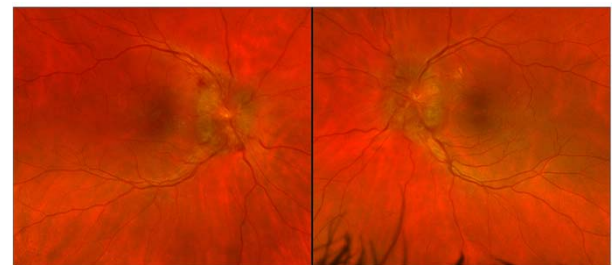
Case #3

OD:

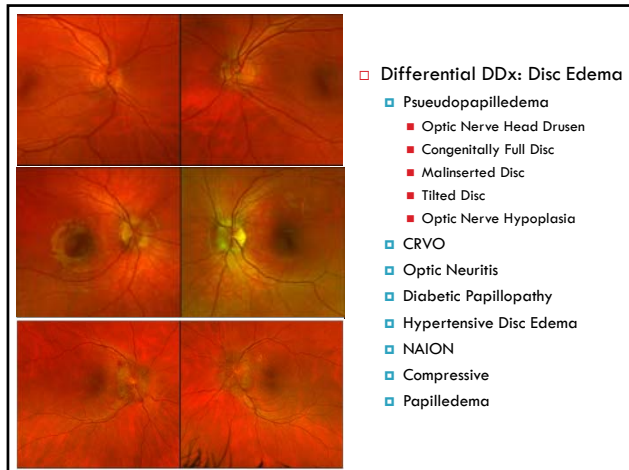
- VA: 20/40cc
- MRx: -1.00 -1.00x095
- 20/25
- EOM and Alignment:
 - Full, Ortho
- Confrontations: Full
- SLE: WNL
- DFE:

OS:

- VA: 20/40
- MRx: -0.75-1.00x093
- 20/25
- EOM and Alignment:
 - Full, Ortho
- Confrontations: Full
- SLE: WNL
- DFE:



- Optic Disc:
 - Severe disc edema; 360 elevation
 - FSH
 - Blurred margin, large vessel obscuration
 - Temporal exudate extending into macula
 - Vessels: WNL
 - Macula: nasal thickening d/t disc edema
 - Periphery: WNL
- Optic Disc:
 - Severe disc edema; 360 elevation
 - No hemorrhages
 - Blurred margin, large vessel obscuration
 - Temporal exudate extending into macula
 - Vessels: WNL
 - Macula: nasal thickening d/t disc edema
 - Periphery: WNL




OPTIC DISC DILEMMAS

IMPORTANT TERMINOLOGY

- Optic disc edema \neq Papilledema
 - Papilledema is optic disc edema due to elevated intracranial pressure
- Papilledema \neq Pseudotumor Cerebri or Idiopathic Intracranial Hypertension

DDx by Dr. Freedman

| Causes | Disc Edema <small>See also Acute Optic Neuropathy</small> |
|--|---|
| High ICP - Papilledema Ischemia - AION Inflammation / Optic Neuritis <ul style="list-style-type: none"> - Classic Demyelinating Optic Neuritis associated with or without MS - Post Viral, Meningitis, Vasculitis, Neuroretinitis, Autoimmune, Infectious (e.g. Toxoplasmosis) Infiltrative - e.g. Leukemia, Sarcoidosis, Lymphoma, Gammapathy Compression - Tumors (e.g. orbital or sellar / parasellar), Large Muscles (e.g. Oculi) or Vessel (e.g. carotid a.) Hereditary : e.g. LHON Toxic - e.g. Methanol, Ethylene Glycol, Chemotherapy, Ethambutol, Anti-TNF α . Other - orbital venous obstruction, POEMS* syndrome Ocular / False Localizing Sign** : e.g. not directly optic nerve disease, but coexisting eye problem Venous stasis (CRVO, BRVO), Hypotony Posterior Scleritis, Uveitis Acute Multifocal Pigment Epitheliopathy (AMPE) Multiple Evanescent White Dot Syndrome (MEWDS) |  |
| OR MAYBE NOT EDEMA, BUT SOMETHING THAT LOOKS LIKE IT e.g. Anomalous Congenital Disc Elevation or Abnormal Disc Vessels or Growths on Disc (see next 2 lists) | |

OPTIC DISC DILEMMAS

| Pseudopapilledema | Papilledema |
|--|---|
| <ul style="list-style-type: none"> □ Optic Nerve Head Drusen □ Congenitally Full Disc □ Malinserted Disc □ Tilted Disc □ Optic Nerve Hypoplasia | <ul style="list-style-type: none"> □ Intracranial Tumor □ Malignant HTN □ Venous sinus thrombosis □ Chiari malformation □ AV Malformation □ Meningitis/Encephalitis □ Idiopathic Intracranial Hypertension |

Crowded Disc



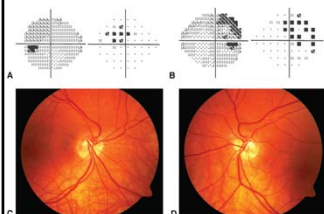
- Asymptomatic
- Smaller than average disc
 - 1.2 – 2.5 mm
 - Average 1.88mm
 - Correction Factor
 - 78D x 1.11
 - 90D x 1.33
- Hyperopic eyes
- Slightly hyperemic

Malinserted Disc



- Oblique insertion of optic nerve to the globe
 - Tilted along vertical axis
- Nasal elevation, temporal depression
 - Scleral crescent
- Myopes

Tilted Disc Syndrome



Triad of findings:

- Tilted Disc
 - Vertical axis itself is rotated downward
 - Superior elevation, inferior depression
- Decreased acuity
- Bi-temporal visual field defects

Optic Nerve Head Drusen



- Buried or Visible
- Elevation of disc
 - With or without blurred margins
- Anomalous vasculature
 - Early branching at disc
 - Tortuosity
- Move to surface as patient ages
 - Scalloped borders
- Usually Asymptomatic
 - Can have VF defects

The Real Diagnostic Dilemma...



OPTIC DISC DILEMMA

EXAM

- Comprehensive History
 - ▣ Headache
 - ▣ Transient visual obscurations
 - ▣ Tinnitus, Vertigo
 - ▣ Diplopia
- Medical Hx
 - ▣ Medications
 - ▣ Systemic risk factors

DDx by Dr. Freedman

Papilledema and Causes of Increased Intracranial Pressure



1. Hypertension – Malignant*
2. Intracranial Tumor (by mass effect or by causing obstructive hydrocephalus), Carcinomatous Meningitis
3. Medications – Vitamin A, Accutane, Tetracyclines, Contraceptives, Corticosteroid withdrawal, Thyroid Replacement, Growth Hormone Supplement
4. Toxic: Ethylene Glycol, Lead (Pb), Hyper-ammonemia
5. CNS Inflammation: Meningitis*, Encephalitis (e.g. Lyme, HIV, post-Varicella, Malaria, Abscess) other inflammatory – e.g. CNS Vasculitis, Lupus, HANDL Syndrome***
6. Trauma, Hematomas, Sub - Arachnoid hemorrhage
7. Vascular abnormalities: AVM, AV fistula (e.g. dural AV fistulae after longstanding venous sinus thrombosis)
8. Obstruction to Venous Drainage – Jugular Vein (e.g. paragangliomas-gliomas tumors), Vena Cava, Venous Sinus Thrombosis – hypercoagulable states, middle ear or mastoid infections, Erythropoietin abuse
9. Hydrocephalus, Significant Chiari Malformation or Dandy Walker Syndrome, Craniosynostosis
10. Endocrine: Addisons, Hypoparathyroidism, Weight Gain
11. Other: Sleep Apnea, Anemia, Thyroid dysfunction, elevated protein levels
12. Idiopathic: Pseudotumor Cerebri or Idiopathic Intracranial Hypertension (IIH)****

**** seen most frequently in young women of child bearing age – including with onset of puberty
first need to rule out above conditions as well as possible and if you make the diagnosis of IIH, then you need to stay open to other causes (like Thrombosis) if it does respond well to treatment

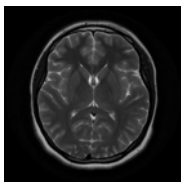
OPTIC DISC DILEMMA

EXAM

- Acuity
 - ▣ Refractive error
- EOM and Cover test
 - ▣ VI palsy most common with PE (38%)
 - Esotropia
 - Abduction deficit

OPTIC DISC DILEMMA

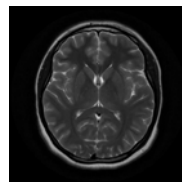
WORKUP



- Brain MRI with and without contrast
 - Urgent/Emergent
 - Consider symptoms and exam
- Lumbar Puncture
 - After imaging
 - Opening pressure
 - CSF Study
- MRV
 - Venous sinus thrombosis

OPTIC DISC DILEMMA

WORKUP



- Follow Up
 - Weeks to month(s)
 - Monitor Symptoms
 - Fundus Photos
 - Visual Field
- Treatment – IIH
 - Stop any causative medications
 - Weight Loss
 - Acetazolamide or Lasix

OPTIC DISC DILEMMAS

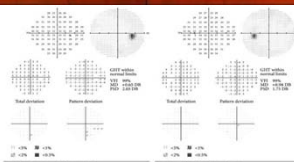
CASE #1



- Optic Disc
- Size: Normal
 - Cup: Crowded
 - Margins: Sharp
 - Vasculature
 - No obscuration
 - SVP: Absent

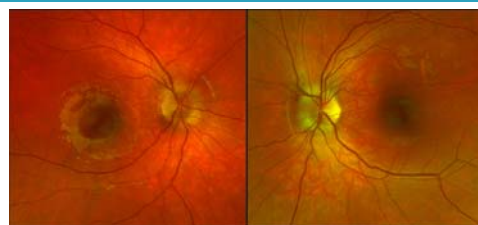
- HVF: Full

- Plan:
- F/U 3-4 months
 - Optic Disc Eval



OPTIC DISC DILEMMAS

CASE #2



OD

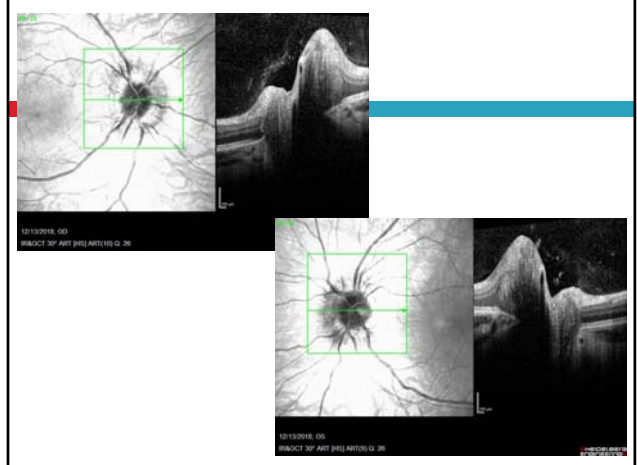
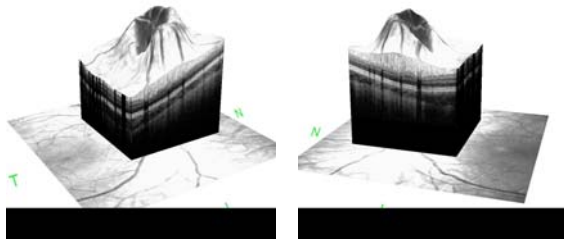
- Optic Disc
 - 0.10
 - Moderate elevation worst nasally
 - Blurring of nasal disc margin; sharp margin temporally
 - No Pallor, No hemorrhage

OS

- Optic Disc
 - 0.10
 - Moderate elevation worst nasally
 - Blurring of nasal disc margin; sharp margin temporally
 - No Pallor, No hemorrhage

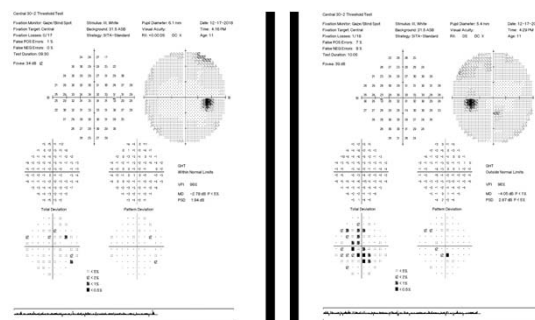
OPTIC DISC DILEMMAS

CASE #2 – 3D OCT



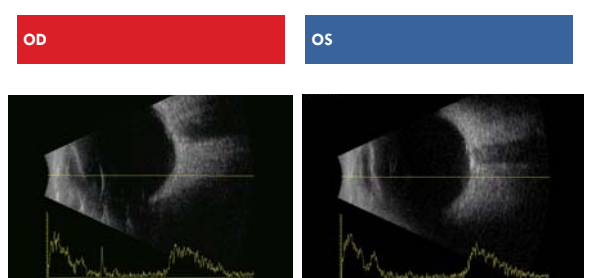
OPTIC DISC DILEMMAS

CASE #2 - HVF



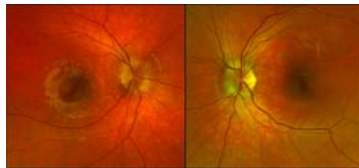
OPTIC DISC DILEMMAS

CASE #2 – B-Scan

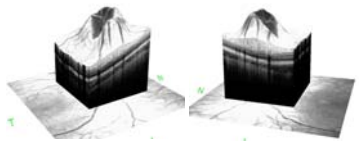


OPTIC DISC DILEMMAS

CASE #2



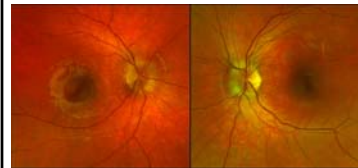
- Optic Disc
 - Size: Normal
 - Cup: Crowded
 - Margins: Blurred nasally
 - Vasculature
 - No obscuration
 - Early bifurcations OS
 - SVP: Absent



- HVF: Full
- OCT: Suspected ONHD
- B-Scan: Suspected ONHD

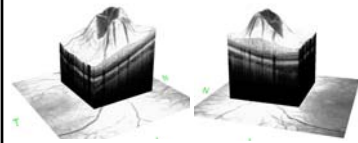
OPTIC DISC DILEMMAS

CASE #2



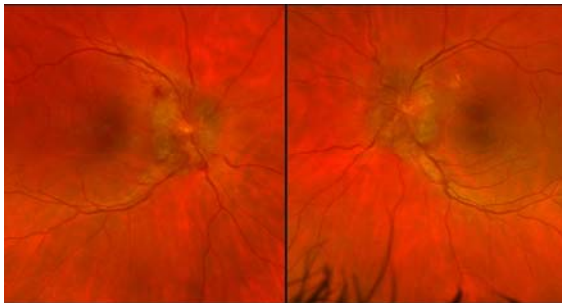
- Diagnosis
 - Suspected Optic Nerve Head Drusen OU

- Plan:
 - F/U 2 months
 - Optic Disc Eval
 - HVF



OPTIC DISC DILEMMAS

CASE #3



OPTIC DISC DILEMMAS

CASE #3

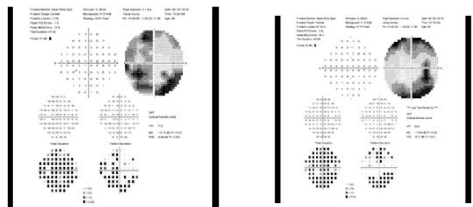
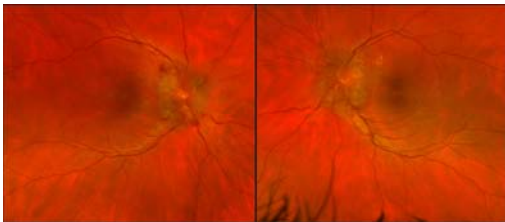
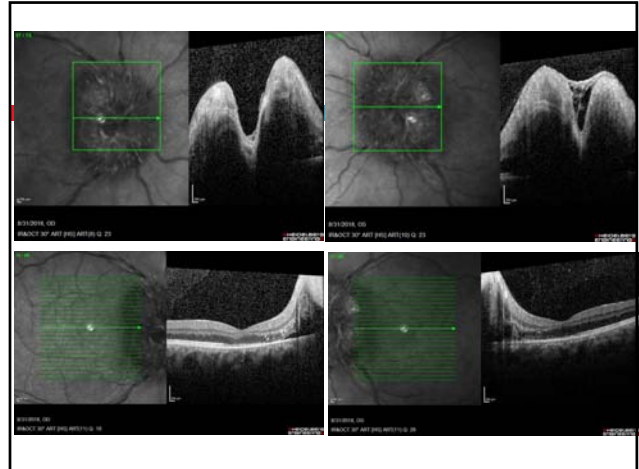
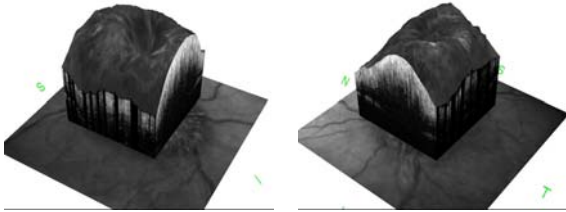


- Optic Disc
 - Severe disc edema; 360 elevation
 - FSH
 - Blurred margin, large vessel obscuration
 - Temporal exudate extending into macula
- Vessels: WNL
- Macula: nasal thickening d/t disc edema

- Optic Disc
 - Severe disc edema; 360 elevation
 - No hemorrhages
 - Blurred margin, large vessel obscuration
 - Temporal exudate extending into macula
- Vessels: WNL
- Macula: nasal thickening d/t disc edema

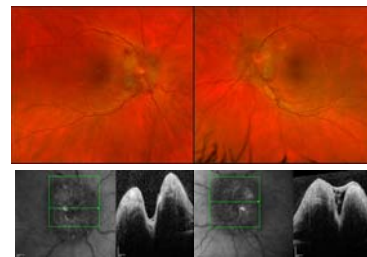
OPTIC DISC DILEMMAS

CASE #3 – 3D OCT



OPTIC DISC DILEMMAS

CASE #3



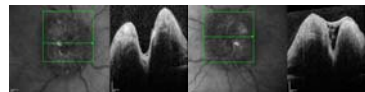
- Optic Disc
 - Size: ?
 - Cup: obscured
 - Margins: blurred 360
 - Vessels:
 - large vessel obscuration
 - FSH
 - SVP: Absent
- HVF:
 - Enlarged blind spot
 - Constriction
- OCT
 - Severe 360 elevation

OPTIC DISC DILEMMAS

CASE #3



- Diagnosis:
 - Bilateral optic disc edema
 - Suspicious for papilledema



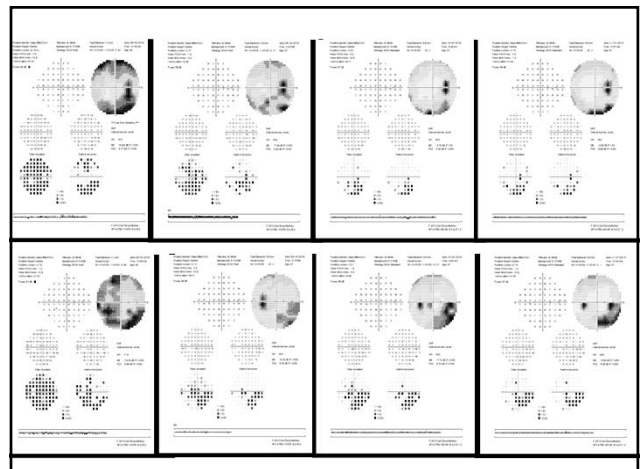
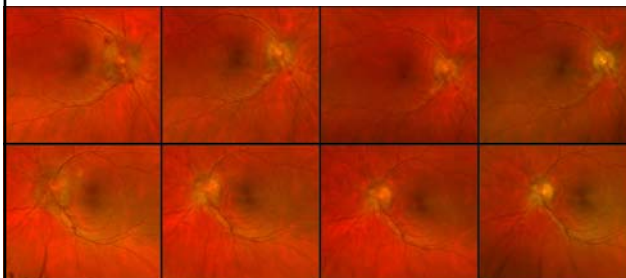
- Plan
 - MRI head within 1 week
 - F/U 1 week

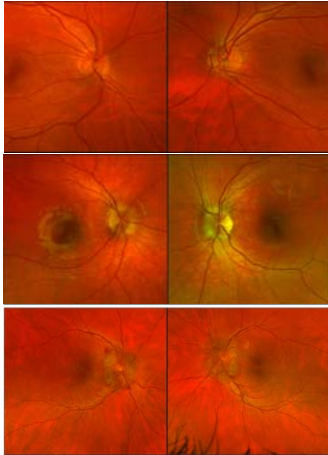
OPTIC DISC DILEMMAS

CASE #3 – FOLLOW UPS

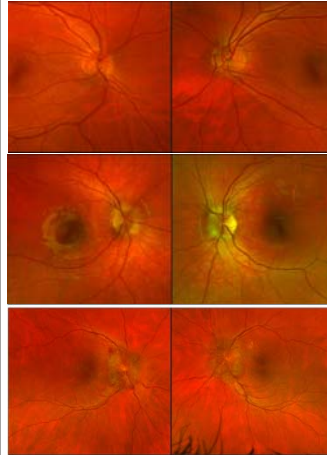
- 1 Week
 - MRI normal
 - Vision stable
 - Symptoms stable
 - LP within 1 week
- 2 week
 - LP - opening pressure 25
 - CSF study normal
 - Start acetazolamide 500mg BID
 - Follow up 1 month

Initial 1 month 2 month 3 month





- Case 1
 - ▣ Congenital disc anomaly
 - ▣ F/U 3 months
- Case 2
 - ▣ Suspected buried optic nerve head drusen
 - ▣ F/U 2 months
- Case 3
 - ▣ Papilledema
 - Pseudotumor cerebri
 - ▣ Normal MRI
 - ▣ High Opening Pressure
 - ▣ Resolving on acetazolamide



PEARLS

- DON'T PANIC!
 - ▣ Comprehensive History
 - ▣ Optic Disc Evaluation
 - ▣ HVF
 - ▣ OCT
- Consider all exam findings
 - ▣ Workup, Refer, Follow

BLESSED BY BACKUP

BACKUP

HISTORY

- 67 year old, white male
- CC: cloudy circle in vision OD
 - ▣ Referred by endocrinologist for cloudy vision
 - ▣ Woke up 10 days ago and OD had a cloudy circle in vision; "looks like a donut" central vision is good
 - ▣ No new neurological symptoms
- Medical Hx
 - ▣ Type 2 Diabetes
 - ▣ HTN
 - ▣ HLD

BACKUP

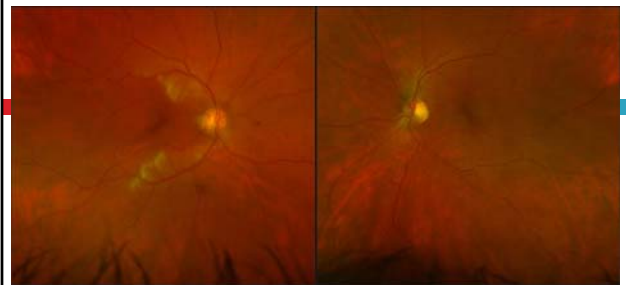
EXAM

OD:

- VA: 20/25
- Pupils: PERRL, no APD
- EOM and Alignment:
 - ▣ Smooth and full
 - ▣ Ortho
- Confrontations: FTCF
- SLE: 1+ NS
- DFE:

OS:

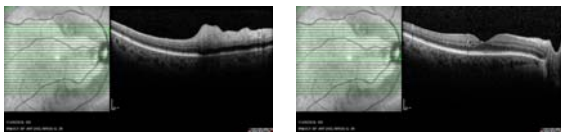
- VA: 20/25
- Pupils: PERRL, no APD
- EOM and Alignment:
 - ▣ Smooth and full
 - ▣ Ortho
- Confrontations: FTCF
- SLE: 1+ NS
- DFE:



- | | |
|---|---|
| <ul style="list-style-type: none"> □ Optic Disc: <ul style="list-style-type: none"> ▣ 0.30 ▣ No edema or pallor □ Macula: appears flat □ Vessels: CWS along temporal arteries; sluggish perfusion □ Periphery: WNL | <ul style="list-style-type: none"> □ Optic Disc: <ul style="list-style-type: none"> ▣ 0.30 ▣ No edema or pallor □ Macula: WNL, flat □ Vessels: <ul style="list-style-type: none"> ▣ Few scattered DBH □ Periphery: WNL |
|---|---|

BACKUP

OCT

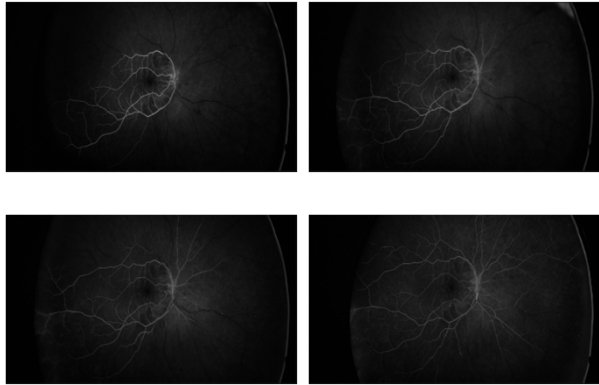


OD: Inner retinal thickening with trace CME
OS: flat

BACKUP

DDX

- DDx:
 - ▣ BRAO
 - ▣ CRAO
 - ▣ Ocular Ischemic Syndrome
- Assessment and Plan:
 - ▣ Central retinal artery occlusion
 - With patent cilioretinal artery
 - ▣ Next day referral to retina clinic
 - ▣ Patient education about diagnosis and systemic complications including risk of stroke



FA REPORT OD: delayed arterial filling with hyperfluorescent changes in veins

BACKUP

WORKUP

- Systemic Workup (within 1 week)
 - ▣ Holter
 - ▣ Echocardiogram
 - ▣ Carotid Ultrasound
 - ▣ ESR/CRP
- 80% blockage of right carotid artery
 - ▣ Now s/p angioplasty
- Maintains 20/25 VA OD

CRAO

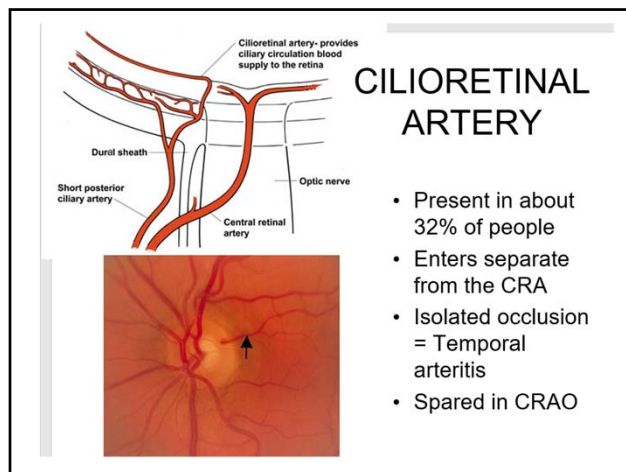
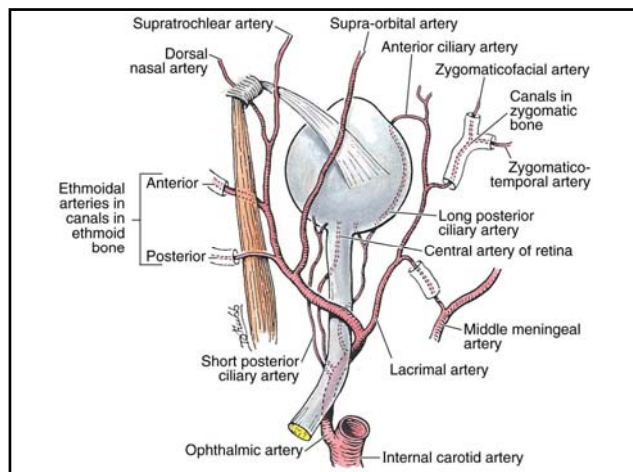
RISK FACTORS

- Age
- Male>Female
- Smoking
- HTN
- Obesity
- Diabetes
- Hyperlipidemia
- Cardiovascular disease
- Coagulopathy

CRAO

PATHOLOGY

- Obstruction of the retinal vessel by embolus, thrombus, trauma, inflammation or spasm



CRAO

EXAM

- Vision loss
 - ▣ Sudden
 - ▣ Painless
 - ▣ Worse than 20/400 (75%)
- APD
- Cherry Red Spot
 - ▣ Develops within a few hours
 - ▣ Resolves in 4-6 weeks

CRAO

TREATMENT

- First 3-4 hours
 - ▣ Lower IOP
 - Topical drops
 - A/C Paracentesis
 - ▣ Ocular Massage
 - Contact gonio lens
- Emergency Room?

CRAO

PEARLS

- Ocular findings are a warning sign for an ischemic stroke
 - High correlation with ischemic finding on brain MRI
- Systemic workup is key
- Visual prognosis is poor

ARE YOU SER(I)OUS!

ARE YOU SER(I)OUS!

HISTORY

- 49 year old, white male
- CC: spot in OS that blocks central vision
 - Onset 5-6 weeks ago
 - Seems to be intermittent; present more when he pays attention to it
 - Looks like a dim disc floating around

ARE YOU SER(I)OUS!

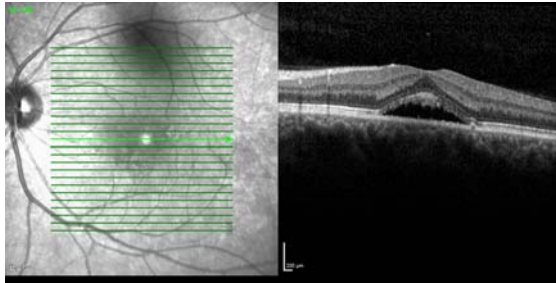
EXAM

OD:

- VA: 20/20 cc
- Pupils: PERRL, no APD
- EOM: full
- Confrontations: full
- SLE: unremarkable
- DFE:
 - C/D: 0.20
 - Macula: WNL
 - Vessels: WNL
 - Periphery: WNL

OS

- 20/20 cc
- Pupils: PERRL, no APD
- EOM: full
- Confrontations: full
- SLE: unremarkable
- DFE:
 - C/D: 0.20
 - Macula: round serous elevation
 - Vessels: WNL
 - Periphery: WNL



OCT:

- Neurosensory Detachment OS
- Small PED temporal to fovea

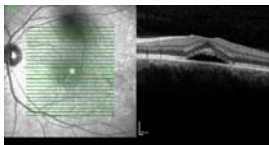
ARE YOU SER(I)OUS!

DIAGNOSIS

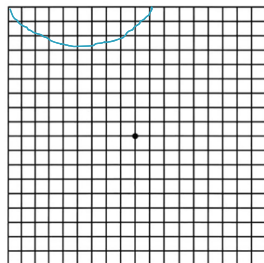
- DDx:
 - Central Serous Chorioretinopathy
 - CNVM
- Diagnosis: Central Serous Chorioretinopathy
 - Amsler grid provided
 - F/U 1 month

ARE YOU SER(I)OUS!

6 WEEKS

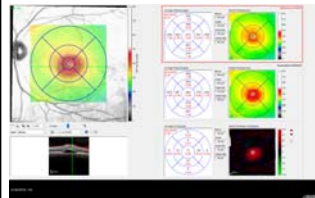


CC: Stable, no changes
 VA: 20/20 OS
 Macula: unchanged
 OCT: unchanged
 F/U: 1 Month



ARE YOU SER(I)OUS!

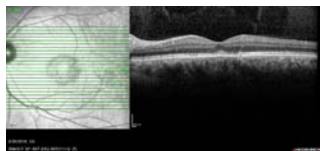
4 MONTHS



- CC: Left eye seems to have improved
- VA: OS 20/25
- SLE: unremarkable
- DFE: stable serous elevation OS
- OCT: slightly worsened NSD
- F/U 1 month in retina clinic

ARE YOU SER(I)OUS!

5 MONTHS



- CC: Distortions dissipating OS
- VA: 20/20- OS
- DFE:
 - Flat
 - RPE changes with few drusen like opacities temporal macula
- OCT:
 - Small PED, no NSD
- F/U
 - 6 Months

CSCR

□ RISK FACTORS

- Stress
- Corticosteroids
- H. Pylori
- Autoimmune diseases
- Sleep Disturbances
- Hypertension

□ PATHOLOGY

- Increased vascular permeability of choroid

CSCR

EXAM

- Blurry vision
- Visual distortion
- Dark area in central vision
- VA: 20/20 – 20/200
- Hyperopic shift (+1.00)
- Round serous elevation of macula
- OCT
 - Neurosensory detachment
 - Pigment epithelial detachment

CSCR

EXAM

□ Treatment

- Self Limiting (weeks to months)
- Stop steroids
- Anti-corticosteroid therapy
- Anti-VEGF
- Laser photocoagulation
- PDT

CSCR

PEARLS

- Treatment = Observation
- Associated PED is not uncommon
- Referral and FA for un-resolving or atypical presentation

...WAIT FOR IT

...WAIT FOR IT

HISTORY

- 30 year old, white male
- 3 day history of redness and irritation OD
- Watery discharge, crusting in the AM
- No pain, no photophobia
- No vision changes
- Vigamox QID
 - Got lidocaine in eyes 7 days prior during dermatology laser session
 - Irrigated in ED; diagnosed with abrasion
 - F/U 2 days later with TTUHSC Ophthalmology was normal
- Medical History
 - Colorectal cancer

...WAIT FOR IT

EXAM – DAY 1

OD

- 20/20 sc
- Adnexa: WNL
- Conjunctiva:
 - 2+ injection
 - 2+ follicles
 - 1+ papillae
- Cornea:
 - 1+ diffuse SPK
 - No abrasion
 - No infiltrate
- A/C: Deep and quiet

OS

- 20/20 sc
- Conjunctiva:
 - WNL
- Cornea
 - WNL
- A/C:
 - Deep and quiet



- F/U 3 days

EXAM – DAY 3



- No subjective improvements
- Very slight improvement clinically
- No involvement OS

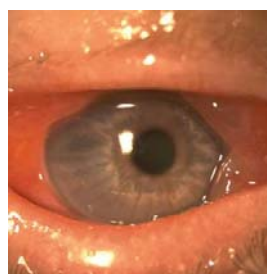
- Continue Tobradex QID OD
- F/U 3-4 days

EXAM – DAY 6

- ❑ Worsening
- ❑ 20/50 sc
- ❑ Adnexa: moderate edema of UL and LL
- ❑ Conjunctiva:
 - ❑ 3+ chemosis
 - ❑ 3+ injection
 - ❑ 2+ follicles
 - ❑ 3+ papillae
 - ❑ Significant mucoid discharge
- ❑ Cornea:
 - ❑ 2+ diffuse SPK
 - ❑ No infiltrates
- ❑ A/C: Deep and quiet

- Symptoms starting
- 20/20 sc
- Adnexa: WNL
- Conjunctiva:
 - 2+ chemosis
 - 2+ injection
 - 1+ follicles
 - 2+ papillae
 - Significant mucoid discharge
- Cornea:
 - trace diffuse SPK
 - No infiltrates
- A/C: Deep and quiet

EXAM – DAY 6



- Viral Conjunctivitis
 - EKC
- Allergic Conjunctivitis
 - Delayed lidocaine toxicity
 - BAK allergy

- Durezol QID
- Stop Tobradex
- PFATs

...WAIT FOR IT

EXAM – DAY 9

OD

- Mild improvement
- 20/40 sc
- Adnexa: moderate edema of UL and LL
- Conjunctiva:
 - trace chemosis
 - 2+ injection
 - 2+ follicles
 - 2+ papillae
 - Significant mucoid discharge
- Cornea:
 - 2+ diffuse SPK
 - No infiltrates
- A/C: Deep and quiet

OS

- Mild Worsening
- 20/20 sc
- Adnexa: mild edema of UL and LL
- Conjunctiva:
 - trace chemosis
 - 2+ injection
 - 1+ follicles
 - 2+ papillae
 - Significant mucoid discharge
- Cornea:
 - 1+ diffuse SPK
 - No infiltrates
- A/C: Deep and quiet

Girlfriend and father have redness and irritation

...WAIT FOR IT

EXAM – DAY 16

OD

- Improving – mild irritation, matting
- 20/60 sc
- Adnexa: mild edema of UL and LL
- Conjunctiva:
 - Chemosis resolved
 - 2+ injection
 - Significant mucoid discharge
- Cornea:
 - 3+ diffuse SPK
 - No infiltrates
- A/C: Deep and quiet

OS

- Improving – mild irritation, matting
- 20/70 sc
- Adnexa: mild edema of UL and LL
- Conjunctiva:
 - Chemosis resolved
 - 2+ injection
 - Pseudomembrane inf conjunctival sac
- Cornea:
 - 3+ SPK
 - No infiltrates
- A/C: Deep and quiet

...WAIT FOR IT

EXAM – DAY 16

- Removed pseudomembrane OS
- Betadine treatment OU
- Ocufen QID OU x 4 days
- Continue Durezol QID
- Call back for f/u

...WAIT FOR IT

EXAM – DAY 38

OD

- Improved
- 20/20 sc
- Adnexa: WNL
- Conjunctiva:
 - Trace injection
 - Trace papillae
- Cornea:
 - Trace diffuse SPK
 - No infiltrates
- A/C: Deep and quiet

OS

- Improving – mild irritation, matting
- 20/25 sc
- Adnexa: WNL
- Conjunctiva:
 - Trace injection
 - Trace papillae
- Cornea:
 - Trace diffuse SPK
 - No infiltrates
- A/C: Deep and quiet

...WAIT FOR IT

EXAM – DAY 38

- Taper Durezol
 - ▢ TID x 3 days, BID x 2 days, QD x 2 days
 - ▢ Continue PFATs
 - ▢ RTC for refraction if blur continues

EPIDEMIC KERATOCONJUNCTIVITIS

- Adenovirus



EKC

SIGNS AND SYMPTOMS

- Conjunctival hyperemia
- Chemosis
- Photophobia
- Blurred Vision
- Subepithelial infiltrates
- Eyelid Swelling
- Pseudomembrane
- Follicular reaction
- Punctate Epithelial keratitis

EKC

TREATMENT

- Treatment
 - ▢ Palliative
 - Artificial tears
 - Cool compresses
 - ▢ Topical Steroid
 - ▢ Betadine Rinse
 - ▢ Dexamethasone-Betadine combo

EKC Pearls

- Steroids can help control inflammation but may lengthen course of infection
- Betadine rinse can help decrease viral load but is highly toxic to the cornea
- Topical betadine-dexamethasone combo may be the future

NUMB AND NUMBER

NUMB AND NUMBER

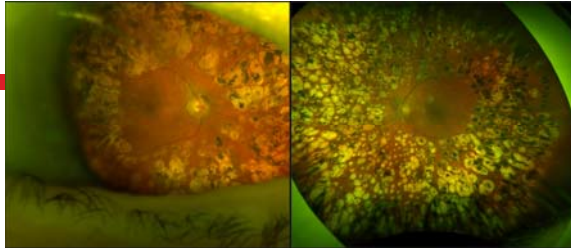
HISTORY

- | | |
|--|--|
| <ul style="list-style-type: none"> □ 50 year old, white female □ CC: DM eye exam <ul style="list-style-type: none"> ■ history of abrasion OD ■ Long history of things to "fix her cornea" ■ Denies pain, redness, irritation □ Ocular Hx: <ul style="list-style-type: none"> ■ Diabetic retinopathy 2017 ■ PCIOL – 2015 ■ Lateral tarsorrhaphy OD <ul style="list-style-type: none"> ■ Poorly healing abrasion OD ■ Presumed herpetic in nature ■ No pain thru this episode | <ul style="list-style-type: none"> □ Medical Hx: <ul style="list-style-type: none"> ■ DM, HTN, HLD, Kidney disease □ Ocular Medications: <ul style="list-style-type: none"> ■ Prednisolone acetate QD OD ■ Restasis BID OU ■ Valacyclovir 1g QD ■ Refresh TID-QID □ Systemic medications <ul style="list-style-type: none"> ■ Atorvastatin ■ Levothyroxine ■ Gabapentin ■ NovoLog ■ Warfarin |
|--|--|

NUMB AND NUMBER

EXAM

- | | |
|---|---|
| <p>OD:</p> <ul style="list-style-type: none"> □ EOM: Full □ Confrontations: constricted □ Adnexa: lateral tarsorrhaphy □ Conjunctiva: WNL □ Cornea: 2-3+ SPK, worst centrally; faint stromal scar? □ A/C: deep and quiet □ Lens: PCIOL in good position | <p>OS:</p> <ul style="list-style-type: none"> □ EOM: Full □ Confrontations: Full □ Adnexa: WNL □ Conjunctiva: WNL □ Cornea: 1-2+ inferior SPK □ A/C: deep and quiet □ Lens: PCIOL |
|---|---|



- Vitreous: VH inferiorly
- C/D: 0.40
- Macula: flat, no fluid
- Vessels: arteriolar narrowing
- Periphery: s/p full PRP
- Vitreous: no heme
- C/D: 0.40
- Macula: flat, no fluid
- Vessels: arteriolar narrowing
- Periphery: s/p full PRP

NUMB AND NUMBER

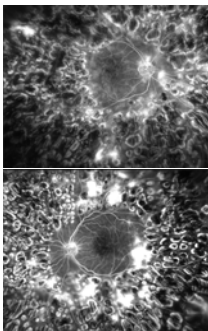
DDX

- DDX for cornea
 - Dry eye
 - Neurotrophic keratitis
 - Topical drug toxicity
 - Chemical injury
 - Limbal stem cell deficiency



NUMB AND NUMBER

PLAN



- Neurotrophic keratitis
 - CPM
 - Prednisolone acetate QD OD
 - Restasis BID OU
 - Valacyclovir 1g QD
 - NPAT's Q1-2 hr OU
 - F/U 1 month
- PDR
 - Active VH OD
 - Inactive OS
 - Retina follow up 2 weeks

NEUROTROPHIC KERATITIS

RISK FACTORS



- HZV, HSV
- Topical Anesthetic
- Diabetes
- Ocular Surgery
 - LASIK/PRK
 - Retinal laser
- Any damage to V
 - Surgical
 - Traumatic

NEUROTROPHIC KERATITIS

PATHOLOGY

- Degenerative disease of cornea resulting from impaired corneal innervation
 - ▢ Lack of neuromodulation leads to degeneration

NEUROTROPHIC KERATITIS

STAGES

- Stage 1
 - ▢ Irregular epithelium; SPK
 - ▢ Corneal edema
 - ▢ Corneal neovascularization
 - ▢ Corneal scarring
- Stage 2
 - ▢ Recurrent or persistent epithelial defects
- Stage 3
 - ▢ Stromal involvement
 - Ulcer
 - Melting
 - Perforation

NEUROTROPHIC KERATITIS

TREATMENT

- Stage 1
 - ▢ Artificial tears/ointment
 - ▢ Autologous serum tears
 - ▢ Bandage contact lens
- Stage 2
 - ▢ Bandage contact lens
 - ▢ Amniotic membrane graft
 - ▢ Antibiotic drops
 - ▢ Steroid?
 - ▢ Tarsorrhaphy
- Stage 3
 - ▢ Ulcer treatment and healing
 - ▢ Prevention of perforation
 - ▢ Oxervate
 - Nerve growth factor
 - ▢ Surgical

NEUROTROPHIC KERATITIS

PEARLS

- Can be easily confused with moderate/severe dry eye
- Consider NK in patients with a history of HSV or HZV
- Educate patient on potential vision threatening complications and importance of follow up