

The background is a dark blue gradient with a pattern of white and light blue circular elements. On the left side, there is a large circular scale with numerical markings from 140 to 260 in increments of 10. Several smaller circles, some solid and some dashed, are scattered across the background, some containing arrows. The overall aesthetic is technical and scientific.

THE MANY FACES OF DRY EYE

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MIDWEST OPTOMETRIC SOCIETY

DEWS II DEFINITION

“A multifactorial disease of the ocular surface characterized by a loss of homeostasis of the tear film, and accompanied by ocular symptoms, in which tear film instability, hyperosmolarity, inflammation, and ocular surface damage, and neurosensory abnormalities play etiological roles.”

DRY EYE ALGORITHMS

TFOS DEWS II Dry-eye Treatment Algorithm

Step 1:

- Education regarding the condition, its management, treatment and prognosis
- Modification of local environment
- Education regarding potential dietary modifications (including oral essential fatty acid supplementation)
- Identification and potential modification/elimination of offending systemic and topical medications
- Ocular lubricants of various types (if MGD is present, then consider lipid-containing supplements)
- Lid hygiene and warm compresses of various types

Step 2: If the above options are inadequate, consider:

- Nonpreserved ocular lubricants to minimize preservative-induced toxicity
- Tea tree oil treatment for Demodex (if present)
- Tear conservation
 - Punctal occlusion
 - Moisture chamber spectacles/goggles
- Overnight treatments (such as ointment or moisture chamber devices)
- In-office, physical heating and expression of the meibomian glands (including device-assisted therapies, such as LipiFlow)
- In-office intense pulsed light therapy for MGD
- Prescription drugs to manage DED *(Note: The use of prescription drugs needs to be considered in the context of the individual patient presentation, and the relative level of evidence supporting their use for that specific indication, as this group of agents differs widely in mechanism of action.)*
 - Topical antibiotic or antibiotic/steroid combination applied to the lid margins for anterior blepharitis (if present)
 - Topical corticosteroid (limited duration)
 - Topical secretagogues
 - Topical nonglucocorticoid immunomodulatory drugs such as cyclosporine
 - Topical LFA-1 antagonist drugs (such as lifitegrast)
 - Oral macrolide or tetracycline antibiotics

Step 3: If the above options are inadequate, consider:

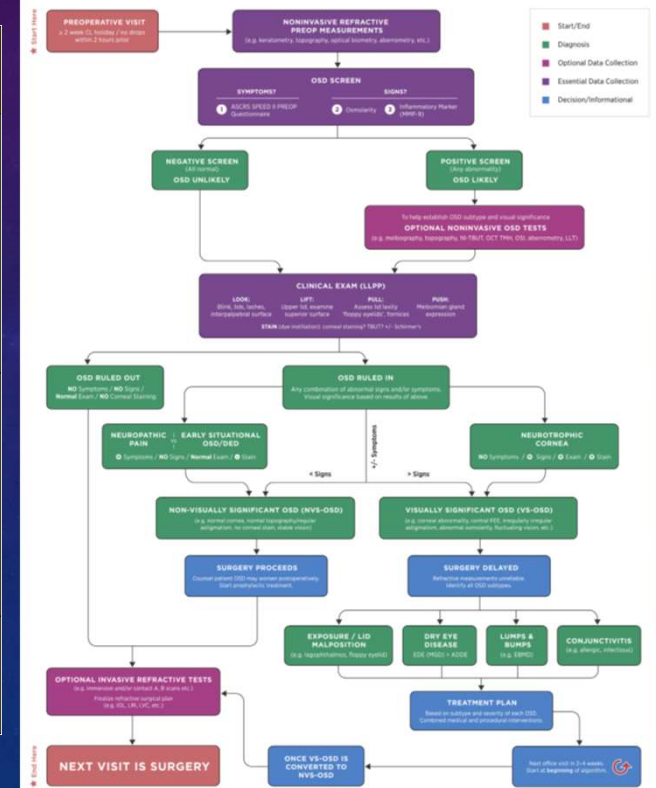
- Oral secretagogues
- Autologous/allogeneic serum eye drops
- Therapeutic contact lens options
 - Soft bandage lenses
 - Rigid scleral lenses

Step 4: If the above options are inadequate, consider:

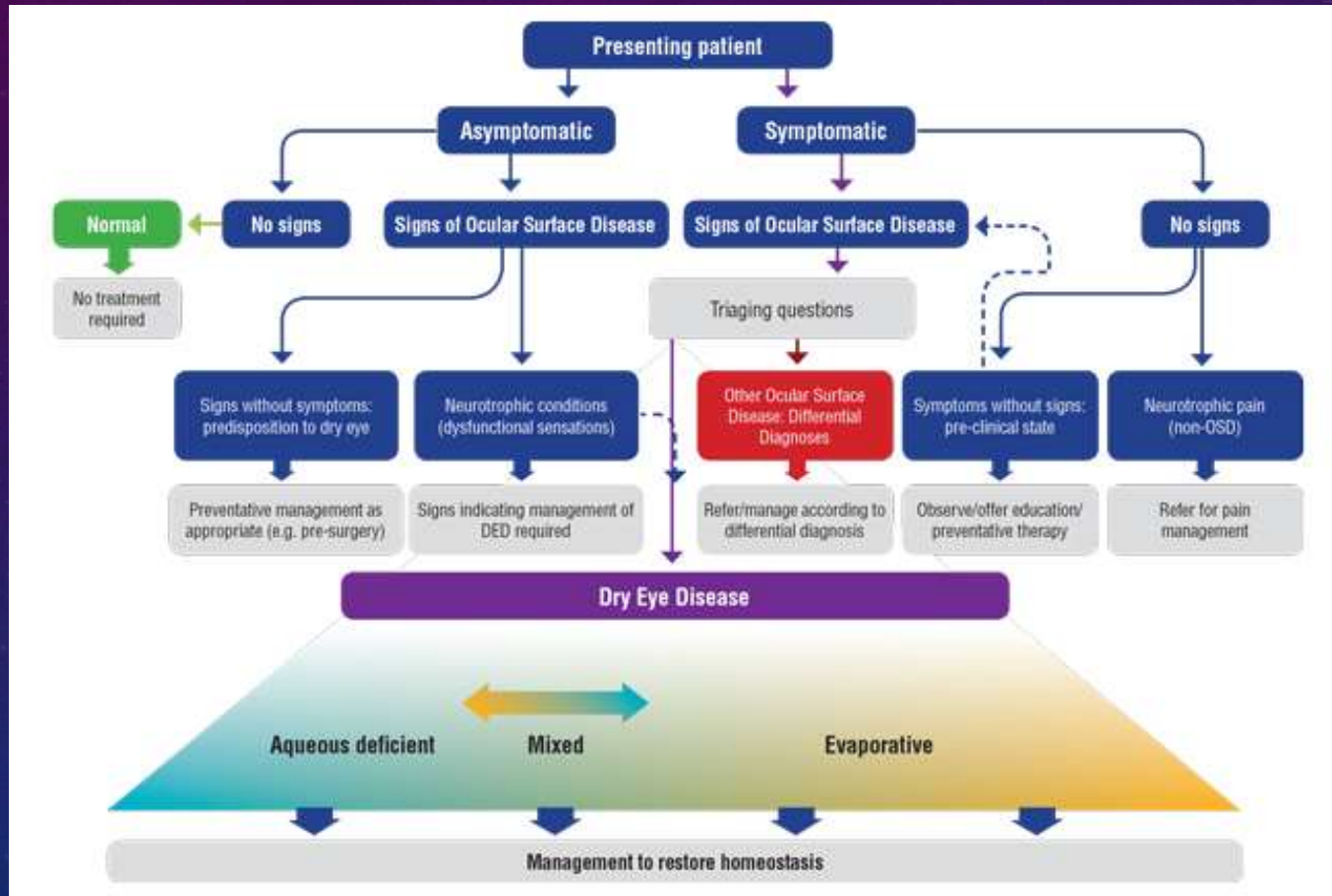
- Topical corticosteroid for a longer duration
- Amniotic membrane grafts
- Surgical punctal occlusion
- Other surgical approaches (e.g., tarsorrhaphy, salivary gland transplantation)

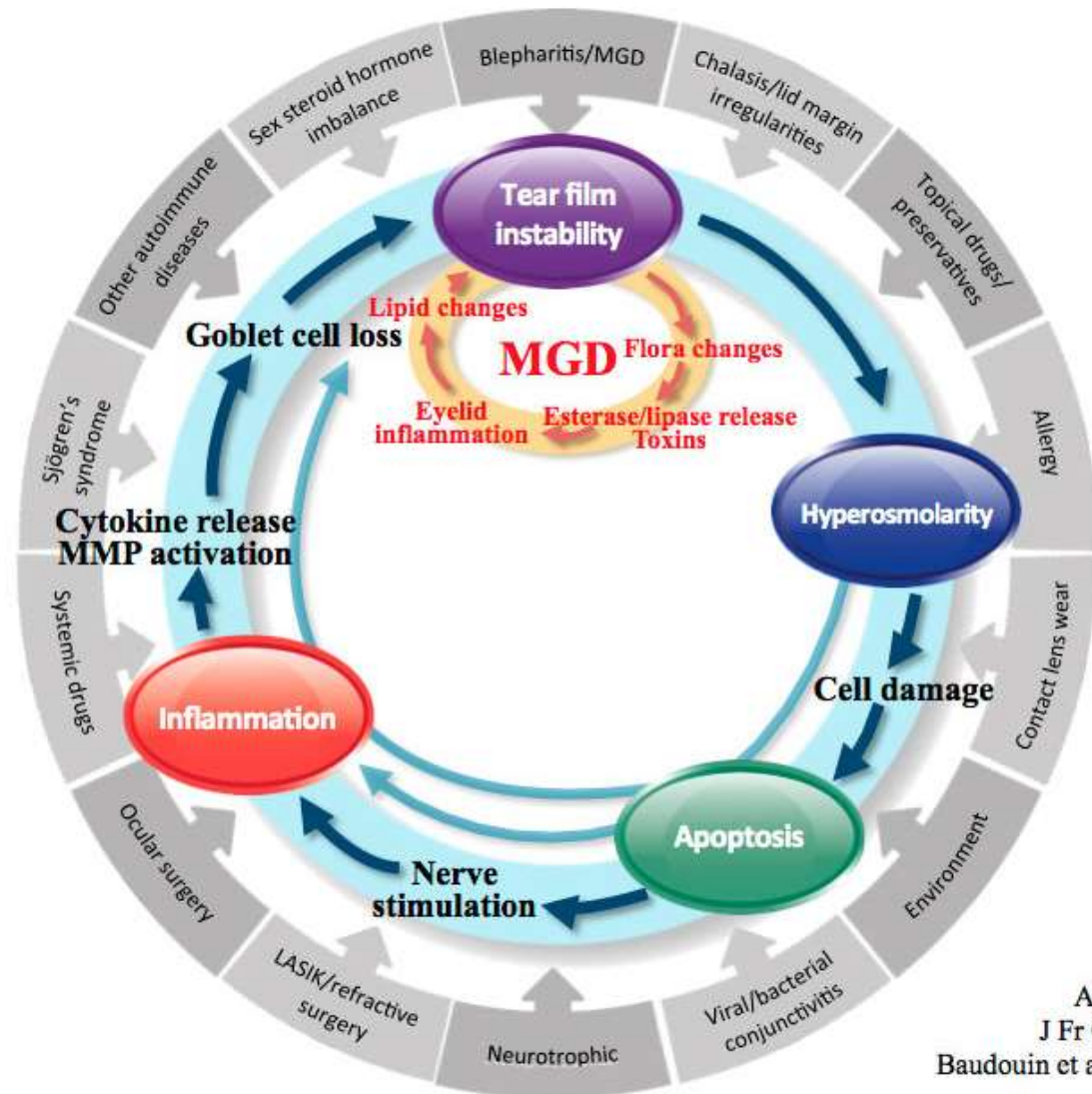
Treatment option	Aqueous tear deficiency	Blepharitis/meibomian gland dysfunction (evaporative or non-evaporative)	Goblet-cell deficiency/mucin deficiency	Exposure-related DTS
First line	<ul style="list-style-type: none"> • Tear supplements and lubricants (ie, drops, gels, ointments, sprays and lubricating inserts) • Nutritional supplements • Topical cyclosporine • Topical lifitegrast • Topical steroids • Topical secretagogues • Moisture chamber eyewear 	<ul style="list-style-type: none"> • Tear supplements and lubricants (ie, drops, gels, ointments, sprays and lubricating inserts) • Lid hygiene and lid scrubs (ie, cleansers, warm compresses and massage) • Nutritional supplements • Topical cyclosporine • Topical lifitegrast • Topical erythromycin/bacitracin • Topical azithromycin • Topical steroids or antibiotic/steroids 	<ul style="list-style-type: none"> • Tear supplements and lubricants (i.e. drops, gels, ointments, sprays and lubricating inserts) • Topical cyclosporine • Topical lifitegrast • Vitamin A ointment – retinoic acid (compounded) • Moisture chamber eyewear • Topical secretagogues 	<ul style="list-style-type: none"> • Tear supplements and lubricants (ie, drops, gels, ointments, sprays and lubricating inserts) • Taping of the eyelid • Moisture chamber eyewear
Second line	<ul style="list-style-type: none"> • Oral secretagogues • Topical hormones (compounded) • Autologous serum (compounded) • Albumin (compounded) • Bandage contact lenses/scleral lenses • Topical dapsone (compounded) • Topical tacrolimus (compounded) • Topical N-acetylcysteine 	<ul style="list-style-type: none"> • Oral doxycycline/tetracycline • Tea tree oil • Topical metronidazole ointment or drops (compounded) • Topical doxycycline (compounded) • Topical clindamycin (compounded) • Topical dehydroepiandrosterone (compounded) • Topical dapsone (compounded) • Topical N-acetylcysteine 	<ul style="list-style-type: none"> • Scleral lenses 	<ul style="list-style-type: none"> • Scleral lenses
Procedures	<ul style="list-style-type: none"> • Punctal plugs • Cautery occlusion • Amniotic membrane transplantation 	<ul style="list-style-type: none"> • In-office thermal pulsation and/or lid massage • Debridement of the lid margin • Intense pulsed light • Meibomian gland probing 		<ul style="list-style-type: none"> • Eyelid surgery (ie, correction of lid malposition and tarsorrhaphy)

ASCRS PREOPERATIVE OSD ALGORITHM



CLASSIFICATION





Adapted from Baudouin et al.
 J Fr Ophtalmol 2007;30:239-46.
 Baudouin et al. The Ocular Surface, 2013

TREATMENT GOALS

- Reduce symptoms
- Minimize structural damage
- Prevent loss of visual function



KEY CONSIDERATIONS:

- Patient education is the key to compliance and success
 - Willingness of patient to accept treatment



THE DRY EYE ANNUITY

Develop a script



Educate Your Patients

Successful Treatment
And Compliance



Deliver a Consistent
Message



WHERE DO I START?

DIAGNOSIS AND MANAGEMENT OF DRY EYE

- A. Profiling patients/symptom assessment
- B. Identify objective signs
- C. Identify predominant subtype
- D. Grade the severity/role of inflammation
- E. Cater your treatment based on the previous 4



THERMAL/HEAT

Compresses/Washcloth

Heat
(Bru)



Manual MC
(In-O

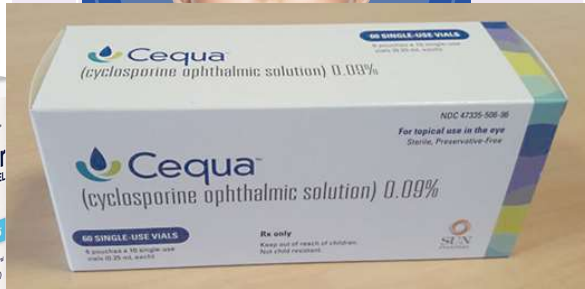
MiBo Th

Thermal Pulsation (Lipiflow)
TearCare
ILux Device

Intense Pulse Light Therapy
(IPL)

HYGIENE

Diluted ~~Xa~~



TOPICAL/ SUPPLEMENTAL



Cyclosporine(0.05%-0.09%)
Lifitegrast
Autologous Serum

Punctal Plugs/Cautery



ORAL

Omega-3 Supplements
(Re-Esterified, Concentrated)

Oral Tetracyclines/Macrolides
(Short-Term)

Oral Tetracyclines
(Long-Term)



(Gabapentin, Opioid)

CASE PRESENTATIONS AND DISCUSSION

- Hypothetical presentations
- Mild, Moderate, and Severe scenarios contemplated
- Treatment based on:

Key Considerations: Based on patient profile and RF's

Symptomology: questionnaires/communication

Clinical Findings: osmolarity, TBUT, ocular surface staining, and lid findings

CASE #1

- 54yo AF
- S/P Lasik OU, early menopause
- Meds: Levothyroxine, Systane artificial tears
- Key Considerations? → Profiling
- Treatment Scenarios: Mild-Mod-Severe?
- Symptoms? Clinical findings?

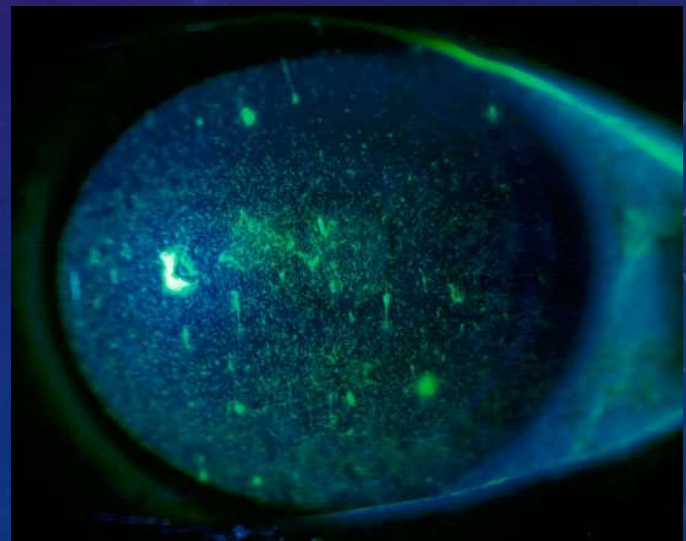
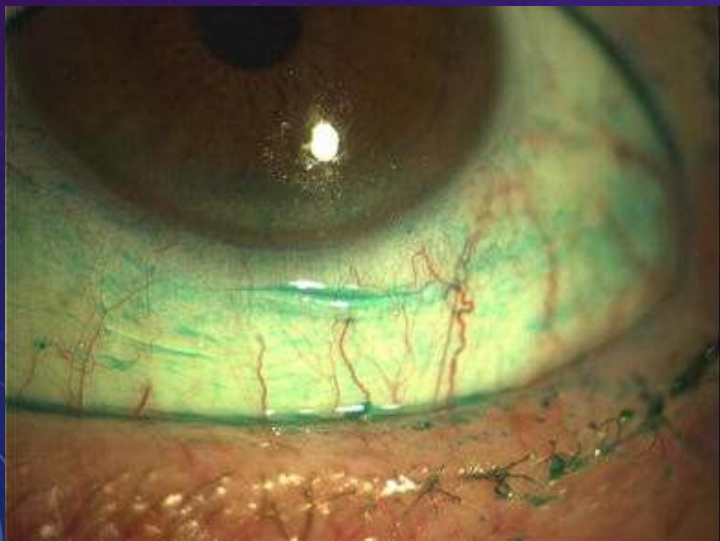


WHERE DO I START?

DIAGNOSIS AND MANAGEMENT OF DRY EYE

- A. Profiling patients/symptom assessment
- B. Identify objective signs
- C. Identify predominant subtype
- D. Grade the severity of the disease
- E. Cater your treatment based on the previous 4
- F. Maintenance and follow-up plan





THERMAL/HEAT	HYGIENE	TOPICAL/ SUPPLEMENTAL	ORAL
Compresses/Washcloth	Diluted Baby Shampoo	Targeted Artificial Tears Blink Exercises Environmental Changes	Omega-3 Supplements (Re-Esterified, Concentrated)
Heat Mask (Bruder)	Detergent-based Products (Ocusoft, Steri-lid)	Topical Antibiotics (Ointments, Gels)	Oral Tetracyclines/Macrolides (Short-Term)
Manual MG Expression (In-Office)	Hypochlorous Acid (Avenova, Hypochlor)	Steroid/Combo	Oral Tetracyclines (Long-Term)
MiBo Thermaflo	4-Terpineol, Tea Tree Oil (Cliradex)	Cyclosporine(0.05%-0.09%) Lifitegrast Autogolous Serum	Oral Secretagogues
Thermal Pulsation (Lipiflow) TearCare ILux Device	Manual Debridement	Punctal Plugs/Cautery Moist Goggles/Scleral Lenses Amniotic Membranes	Neuropathic Pain Mgmt (Gabapentin, Opioid)
Intense Pulse Light Therapy (IPL)	MicroblepharoExfoliation (BlephEx, AB Max)	Nasalacrimonal Stimulation Tarsorrhophy	

CASE #2

- 62yo WM
- T2DM x 10 yrs, Hypertension, Hypercholesterolemia, Acne/Ocular Rosacea appearance
- Meds: Metformin, Toprol, Lipitor
- Key Considerations? → Profiling
- Treatment Scenarios: Mild-Mod-Severe?
- Symptoms? Clinical findings?



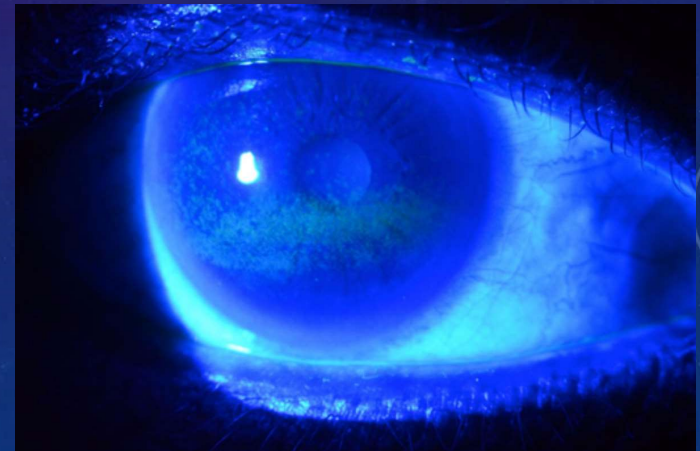
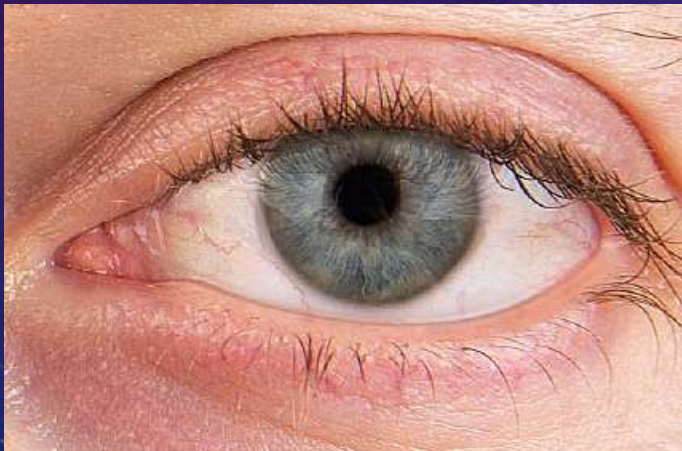


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Intense Pulse Light Therapy (IPL)	MicroblepharoExfoliation (BlephEx, AB Max)	Nasalacrimonal Stimulation Tarsorrhophy	

CASE #3



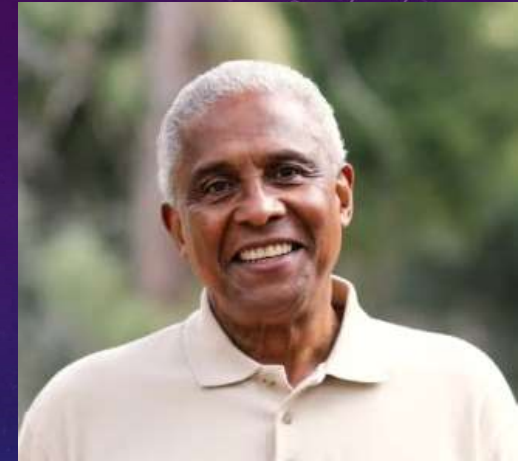
- 34 yo IM
- DW CL wearer, works on computer 8-10 hrs/day, seasonal allergies
- Meds: Zyrtec daily
- Key Considerations? → Profiling
- Treatment Scenarios: Mild-Mod-Severe?
- Symptoms? Clinical findings?

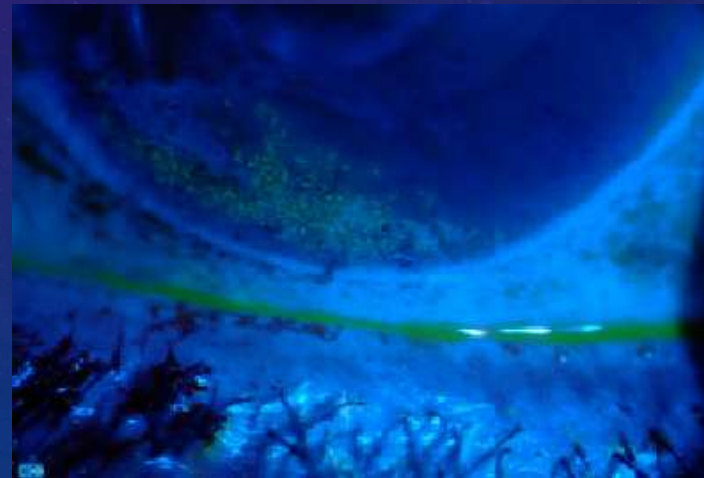
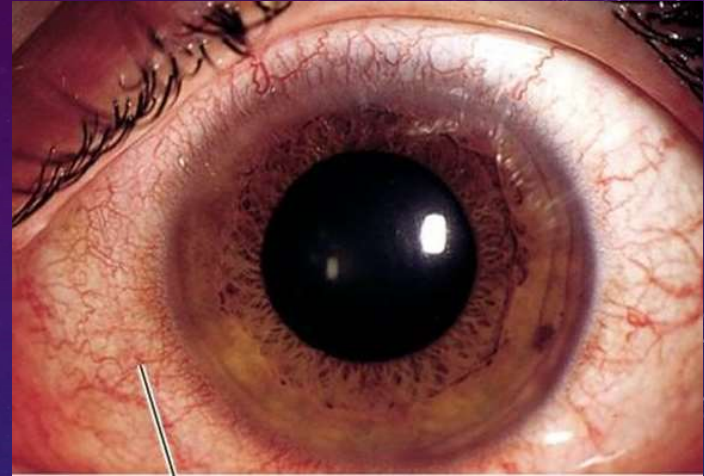


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Thermal Pulsation (Lipiflow) TearCare ILux Device	Manual Debridement	Punctal Plugs/Cautery Moist Goggles/Scleral Lenses Amniotic Membranes	Neuropathic Pain Mgmt (Gabapentin, Opioid)
Intense Pulse Light Therapy (IPL)	MicroblepharoExfoliation (BlephEx, AB Max)	Nasalacrima Stimulation Tarsorrhophy	

CASE #4

- 72yo BM, retired
- Hx POAG OU, Hypertension, s/p Cataract Extraction OU
- Meds: Latanoprost, Combigan, HCTZ
- Key Considerations? → Profiling
- Treatment Scenarios: Mild-Mod-Severe?
- Symptoms? Clinical findings?



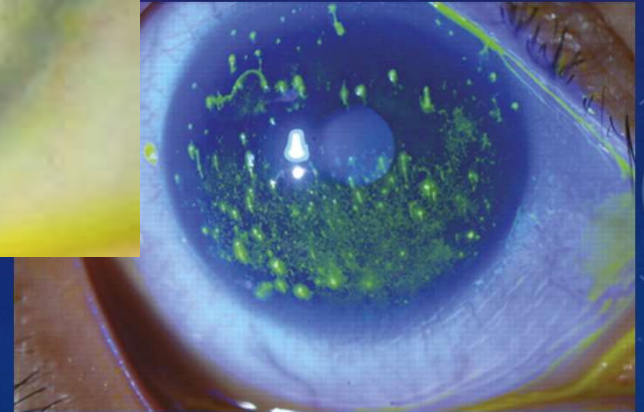
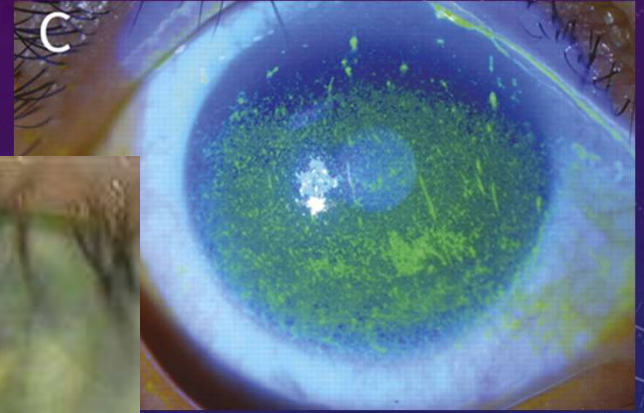
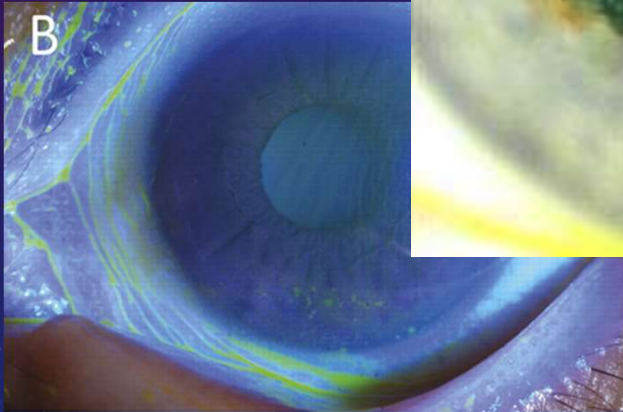
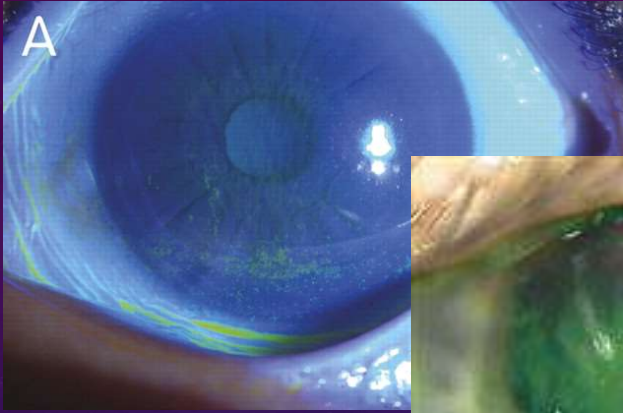


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Thermal Pulsation (Lipiflow) TearCare ILux Device	Manual Debridement	Punctal Plugs/Cautery Moist Goggles/Scleral Lenses Amniotic Membranes	Neuropathic Pain Mgmt (Gabapentin, Opioid)
Intense Pulse Light Therapy (IPL)	MicroblepharoExfoliation (BlephEx, AB Max)	Nasalacrimonal Stimulation Tarsorrhophy	

CASE #5

- 61yo WF
- Hx Autoimmune Rheumatoid arthritis/Sjogren's
- Meds: Plaquenil 400mg/d, Restasis bid OU, Silicone plugs LL OU
- Key considerations? —————> Profiling
- Treatment Scenarios: Mild-Mod-Severe?
- Symptoms? Clinical findings?





THERMAL/HEAT	HYGIENE	TOPICAL/ SUPPLEMENTAL	ORAL
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Heat Mask (Bruder)	Detergent-based Products (Ocusoft, Steri-lid)	Topical Antibiotics (Ointments, Gels)	Oral Tetracyclines/Macrolides (Short-Term)
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Intense Pulse Light Therapy (IPL)	MicroblepharoExfoliation (BlephEx, AB Max)	Nasalacrima Stimulation Tarsorrhophy	

SUMMARY

- Dry Eye presents itself in many variations and etiologies
- Profile your patients and identify long-term risks
- Identify primary/secondary causes and treatment routes
- Use Symptoms/Clinical testing to establish severity
- **BE AGGRESSIVE!**
- Develop a maintenance plan and follow up schedule