



**STATE BOARD OF OPTOMETRY**  
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834  
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov



### Continuing Education Course Approval Checklist

Title:

Provider Name:

- Completed Application
  - Open to all Optometrists?  Yes  No
  - Maintain Record Agreement?  Yes  No
- Correct Application Fee
- Detailed Course Summary
- Detailed Course Outline
- PowerPoint and/or other Presentation Materials
- Advertising (optional)
- CV for EACH Course Instructor
- License Verification for Each Course Instructor
  - Disciplinary History?  Yes  No



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CONTINUING EDUCATION COURSE APPROVAL APPLICATION

\$50 Mandatory

Pursuant to California Code of Regulations (CCR) § 1536, the Board will approve continuing education (CE) courses after receiving the applicable fee, the requested information below and it has been determined that the course meets criteria specified in CCR § 1536(g).

In addition to the information requested below, please attach a copy of the course schedule and topical outline of the subject matter. Applications must be submitted 45 days prior to the course presentation date.

Please type or print clearly.

Course Title: 10 Diagnoses That are not dry eye but could save your patient's eye and vision
Course Presentation Date: 6:30 PM - 8:30 PM
03/29/2017

Course Provider Contact Information

Provider Name: Coastal Vision Medical Group
Gina (First) Valdemar (Last)

Provider Mailing Address: Street 293 S. Main St. #100 City Orange State CA Zip 92660

Provider Email Address: gina.valdemar@coastal-vision.com

Will the proposed course be open to all California licensed optometrists? [X] YES [ ] NO

Do you agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation? [X] YES [ ] NO

Course Instructor Information

Please provide the information below and attach the curriculum vitae for each instructor or lecturer involved in the course. If there are more instructors in the course, please provide the requested information on a separate sheet of paper.

Instructor Name: Jennifer Wu Lee
(First) (Last) (Middle)

License Number: 117309 License Type: MD

Phone Number: (714) 746 9679 Email Address: gina.valdemar@coastal-vision.com

I declare under penalty of perjury under the laws of the State of California that all the information submitted on this form and on any accompanying attachments submitted is true and correct.

Signature of Course Provider

Date: 2-7-17

**Course Title: 10 Diagnoses That Are Not Dry Eye, but could save your patient's eye and vision & Wetlab**

**Course Presentation date: 3/29/17**

**Speaker: Jennifer Lee Wu, MD**

**Target Audience: This lecture is intended for optometrist seeking continuing education**

**Course Description:**

This lecture seeks to provide optometrists with information regarding Dry Eye Management and Ocular Surface Disease. Discussion includes patient symptoms and treatments to include carcinoma, inflammation, conjunctivitis and more. Lecture will include case study discussion, common misdiagnosis and management. Wetlab practical will provide amino disk demonstration and hands-on applications using pig eyes. Amino disks provided by various vendors.

CE Credit: 2 CE Units

- 1  **10 DIAGNOSES THAT ARE NOT DRY EYE  
BUT COULD SAVE YOUR PATIENT'S LIFE AND VISION**
- 2  **COMMON SYMPTOMS OF DRY EYE DISEASE**
  - Sensitivity to light
  - Redness
  - Fluctuating vision
  - Dull aching pain/sharp stabbing pain
  - Sandy/foreign body sensation
  - Excessive tearing
  - Headache
  - Itchy eyes
  - Morning crustiness
  -
- 3  **WHAT DO YOU THINK WHEN YOU SEE A DRY EYE PATIENT ON YOUR SCHEDULE?**
- 4  **"WHY ARE YOU TELLING ME MY EYES ARE DRY WHEN I'M OVERFLOWING WITH TEARS?"**

**"DOC I TRIED THE ARTIFICIAL TEAR BUT MY EYES ARE STILL RED AND I WAKE UP WITH MY EYES CRUSTED SHOT . . . "**
- 5  **OBJECTIVES**
  - 1. Understand components of the ocular surface ecosystem
  - 2. Be aware of local disease that affect the eyelids
  - 3. Be aware of local disease that affect the conjunctiva
  - 3. Learn about systemic diseases that commonly present with ocular symptoms
- 6  **NOMENCLATURE: OCULAR SURFACE DISEASE**
  - Ocular surface disease is a disruption of the ocular surface ecosystem.
    - This ecosystem comprises the eyelids, conjunctiva, cornea, lacrimal gland, mibomeium glands, ocular surface bacterial flora, lymph nodes, corneal nerves
  - Tear film components
  - Evaporative dry eye
  - Aqueous dry eye
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  - Redness
  - Fluctuating vision
  - Dull aching pain/sharp stabbing pain
  - Sandy/foreign body sensation
  - Excessive tearing
  - Headache
  - Itchy eyes
  - Morning crustiness
  -
- 8  **1. INCOMPLETE EYELID CLOSURE**

- Lagophthalmos (Bell's Palsy, excessive blepharoplasty, brain surgery)- inability to close the eyelids completely
- Ectropion
  - Involutional-due to horizontal laxity of the eyelid
  - Cicatricial- vertical foreshortening caused by scarring or inflammation

9  **1. INCOMPLETE EYELID CLOSURE TREATMENT**

- <sup>1</sup> • Lagophthalmos- check Bell's reflex
  - Ectropion- check if lateral alignment will help
  - Check tear lake level
- <sup>2</sup> • Moisture Chamber Goggles at Bedtime (Tranquileyes)
  - Preservative free gel or eye ointment at bedtime
  - Referral to oculoplastic if lid alignment can be improved

10  **2. COMMON SYMPTOMS OF DRY EYE DISEASE**

- Sensitivity to light
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11  **2. ANTERIOR BLEPHARITIS**

- Staphylococcal aureus
- Demodex folliculorum mite
- Rosacea inflammation

12  **ANTERIOR BLEPHARITIS  
(STAPHYLOCOCCAL AUREUS)**

Treatment

- Oral antibiotics (doxycycline or azithromycin)
- Lid scrubs
- Topical antibiotic and steroid pulse (Tobradex or Maxitrol ointment)
- Topical antibiotic (erythromycin)
- 

13  **ANTERIOR BLEPHARITIS  
(DEMODEX FOLLICULORUM MITE)**

14  **ANTERIOR BLEPHARITIS  
(ROSACEA INFLAMMATION)**

15  **3. SEBACEOUS CARCINOMA OF EYE LID**

- Often misdiagnosed as a chalazion or chronic blepharitis
- Rare, highly malignant, and potentially lethal tumor of the skin, which most commonly occurs in the eyelid

- Usually at the lid margin but can extend to the palpebral conjunctiva
- 

16  **4. COMMON SYMPTOMS OF DRY EYE DISEASE**

- Sensitivity to light
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- Sandy/foreign body sensation
- Excessive tearing
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17  **4. ALLERGIC CONJUNCTIVITIS**

- Seasonal allergic conjunctivitis (SAC)
- Vernal keratoconjunctivitis (VKC)
- Atopic keratoconjunctivitis (AKC)
- Giant papillary conjunctivitis (GPC)

18  **4. ALLERGIC CONJUNCTIVITIS**

- Clinical Findings- look at fornix and flip the eye lids
  - Conjunctival chalasis
  - Follicles inferior fornix
  - Papillae superior tarsal conjunctiva
- Treatment
  - Anti-histamine eye drop (Pazeo, Lastacaft)
  - Oral anti-histamine (Claritin or Zyrtec)
  - Mast cell stabilizer (Cromolyn Sodium)
  - Steroid (drop or sub-tenons kenalog)
  - Anti-inflammatory (Restasis, Xiidra)
- 

19  **ROLE OF INFLAMMATION IN OCULAR SURFACE DISEASE?**

20  **5. COMMON SYMPTOMS OF DRY EYE DISEASE**

- Sensitivity to light
- Redness
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21  **5. WHAT IS THIS?**

22  **5. LIMBAL STEM CELL DEFICIENCY**

- Corneal epithelium is a stratified squamous epithelium from which superficial cells are naturally shed and repopulated every 3-10 days
- Epithelium cells are replenished from stem cells residing in the Palisades of Vogt at the limbus
- Limbus serves as a natural barrier for conjunctiva to cross onto the epithelial surface

23  **5. LIMBAL STEM CELL DEFICIENCY**

- Loss of limbal stem cells results in
  - epithelial breakdown
  - persistent epithelial defects
  - corneal conjunctivalization
  - Neovascularization
  - Cornea scarring

24  **5. LIMBAL STEM CELL DEFICIENCY**

- Common causes
  - Congenital- Aniridia
  - Autoimmune disease- SJS
  - Traumatic- chemical injury, chronic soft contact lens wear
  - Iatrogenic- multiple ocular surgeries

25  **6. COMMON SYMPTOMS OF DRY EYE DISEASE**

- Sensitivity to light
- Redness
- Fluctuating vision
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- Excessive tearing
- Headache
- Itchy eyes
- Morning crustiness
- 

26  **6. WHAT IS THIS?**

27  **6. MUCOUS MEMBRANE PEMPHIGOID (MMP)/ OCULAR CICATRICIAL PEMPHIGOID (OCP)**

- Type II hypersensitivity response caused by an autoantibody to a cell surface antigen in the basement membrane of the conjunctival epithelium
- Linear deposition of IgG, IgM, IgA or C3 along the epithelial basement membrane that leads to progressive scar formation in conjunctival tissue
- Oral involvement is most common (in 90% of cases), followed by ocular involvement (in 61% of cases)
- Ask about bleeding in gums
- Mostly older women
- Definitive diagnosis is by conjunctival biopsy

28  **6. MUCOUS MEMBRANE PEMPHIGOID (MMP)/ OCULAR CICATRICIAL PEMPHIGOID (OCP)**

- Early disease is chronic dry eye symptoms!
- Chronic conjunctivitis
  - Stage 1: subepithelial fibrosis-fine white striae most easily seen in the inferior fornix
  - Stage 2: forniceal shortening-a normal inferior forniceal depth is approximately 11 mm
  - Stage 3: Symblepharon formation
  - Stage 4: Ankyloblepharon- surface keratinization
- 

29  **6. PSEUDO-MUCOUS MEMBRANE PEMPHIGOID (MMP)**

- Looks just like MMP but conjunctival biopsy is negative
- Patient has history of chronic glaucoma drops usage
- Patient is male

•

30  **7. SYSTEMIC AUTO-IMMUNE DISEASES WITH OCULAR PRESENTATIONS**

- Sjögren's Syndrome
- Rheumatoid Arthritis
- Wegener's Granulomatosis
- Sarcoidosis

31  **7. CASE PRESENTATION**

- 77 yo Caucasian F, thinks she is being referred for cataracts and dry eyes.
- Va 20/30 and 20/70

32  **7. CASE**

33  **CASE**

34  **7. CASE**

- 1 • PMH:
  - Breast cancer, s/p segmental mastectomy 2008
  - Recently diagnosed with lymphoma, s/p bone marrow biopsy
  - Also s/p 3 separate lung biopsies showing inflammation
- Differential?
  - Wegners, Sarcoid, metastatic malignancy

•

2 •

•

35  **7. CASE**

- 
- Additional Work-up?
  - ANCAs, ANA, lysozyme, ACE, TB, RPR, CXR
  - Request lung biopsy records, looking for granulomas
- 

36  **7. CASE**

- Initial Treatment
  - High dose IV steroids and rituximab (antibody binds to CD-20 on B cells)



- Had trouble tolerating high dose oral steroids
- Added Methotrexate MTX (antimetabolite, inhibition of T cell activation)
- 

37 38 39  **8. COMMON SYMPTOMS OF DRY EYE DISEASE**

- Sensitivity to light
- Redness
- Fluctuating vision
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- Sandy/foreign body sensation
- Excessive tearing
- Headache
- Itchy eyes
- Morning crustiness
- 

40  **8. INFLAMED PINGUECULUM/ SCLERITIS**41  **8. CASE PRESENTATION**

- What do you want to know?
  - PMH: HTN, Gout (on allopurinol)
  - POH: CSR OU
- Differential: Sectoral Scleritis OU
- Additional Work-up? Does not blanch with epinephrine
- Labs: ANCAs, ANA, lysozyme, ACE, CXR- all negative
- Initial Treatment: PF QID OU
- 

42 43  **9. WHAT IS THIS?**44  **9. CASE PRESENTATION**

- 73 yo Caucasian Male referred for frequent dry eyes OD > OS, and blurry vision OD > OS.
- POHx: s/p CE/IOL OD, s/p blepharoplasty OU
- Meds: Lotemax QD OU, oral doxycycline PO

45  **9. CONJUNCTIVAL INTRA-EPITHELIAL NEOPLASM (CIN)**46  **BIOPSY PERFORMED**47  **10. NEUROTROPHIC KERATITIS**

- "You can't heal something you can't feel"
- Corneal sensation test (cotton tip)
- Etiology (loss of CN 5, Herpes keratitis, corneal transplant, multiple ocular surgeries, diabetes, chronic contact lens wear)
- 
- 

48  **TREATMENT**

- Bandage contact lens
- Prokera/Ambio disc
- Erythromycin Ointment
- Lateral tarsorrhaphy

49  **ROLE OF INFLAMMATION IN OCULAR SURFACE DISEASE?**

50  **SUMMARY**

- Exam eyelid anatomy to rule-out anatomical reason for dry eye symptoms.
- Examine the conjunctiva carefully and treat conjunctival diseases. Refer out for any suspicious looking lesions.
- Keep systemic diseases in the back of your mind, you could save your patient's life!
- 

51  **THE KEY TO TREATING OCULAR SURFACE DISEASE IS TO TREAT THE UNDERLYING CAUSE**

52

53  **SOURCES OF INFLAMMATION**

- Blepharitis
- Chronic allergic conjunctivitis
- Desiccation of the tear film (wind, low humidity)
- Decreased aqueous production
- Auto-immune diseases (Sjögren's Syndrome)
- Ocular surgery

54  **DISRUPTION TO OCULAR SURFACE AND CORNEAL SENSATION**

- Contact lens wear
- Topical medications (glaucoma drops switch to preservative free)
- Laser refractive surgery
- Systemic Disease (diabetes)
- Infection (herpes keratitis)
- Trauma (damage to 5<sup>th</sup> cranial nerve)
- 

55  **THANK YOU!**

Questions?  
jennywu@coastal-vision.com

56  **WET LAB**

Ambiodisc

57  **HOW TO USE AMBIO DISK- DEMONSTRATION**

- Remove from package, keep serial number
- Partially open sterile package
- Place lid speculum in the eye
- Use sterile Q-tip to dry cornea surface
- Use non-toothed forceps to remove Ambiodisc
- Confirm "P" side down
- Smooth onto cornea
- Place bandage contact lens

- Remove lid speculum
- Instill anti-biotic drop
- 
-

# 10 DIAGNOSES THAT ARE NOT DRY EYE

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BUT COULD SAVE YOUR PATIENT'S LIFE AND VISION

Jennifer Lee Wu, MD  
Cornea, Cataract, Refractive Specialist  
Coastal Vision Medical Group

# COMMON SYMPTOMS OF DRY EYE DISEASE

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- Sensitivity to light
- Redness
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- Sandy/foreign body sensation
- Excessive tearing
- Headache
- Itchy eyes
- Morning crustiness

**WHAT DO YOU THINK WHEN YOU SEE A  
DRY EYE PATIENT ON YOUR SCHEDULE?**

---

“WHY ARE YOU TELLING ME MY EYES ARE DRY WHEN I’M  
OVERFLOWING WITH TEARS?”

“DOC I TRIED THE ARTIFICIAL TEAR BUT MY EYES ARE STILL RED  
AND I WAKE UP WITH MY EYES CRUSTED SHOT ...“



# OBJECTIVES

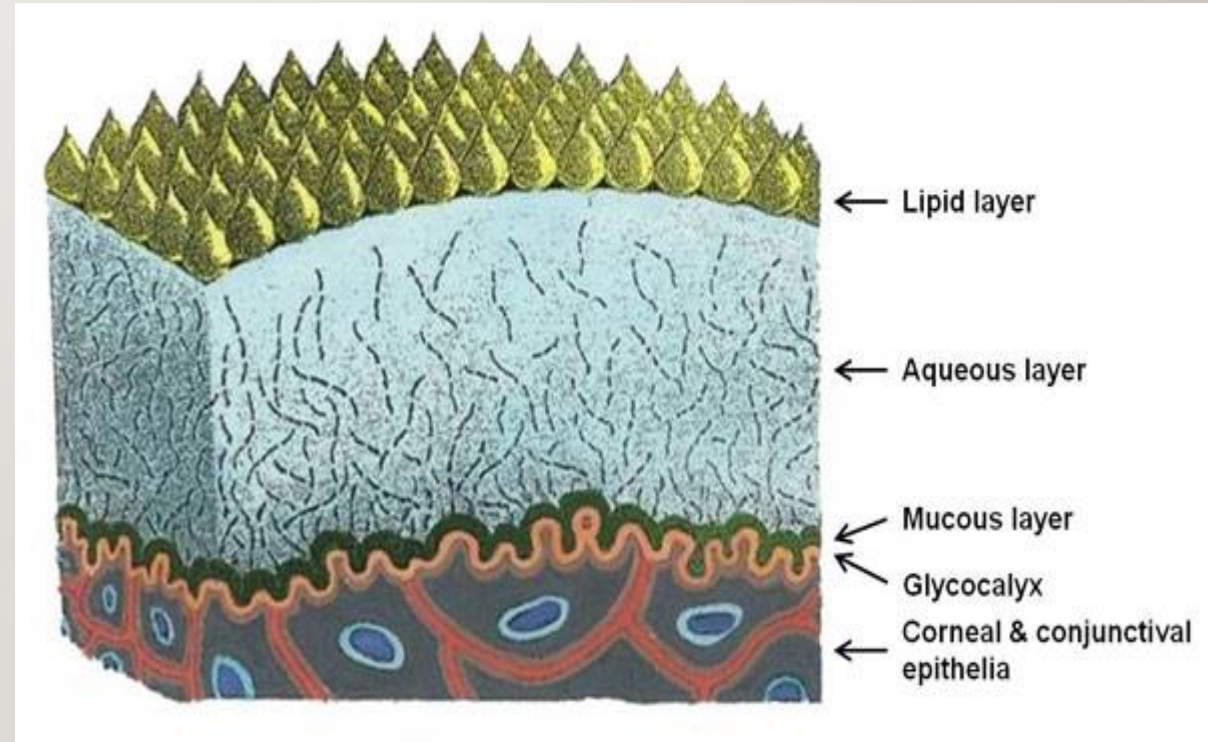
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- 1. Understand components of the ocular surface ecosystem
- 2. Be aware of local disease that affect the eyelids
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# NOMENCLATURE: OCULAR SURFACE DISEASE

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# I. COMMON SYMPTOMS OF DRY EYE DISEASE

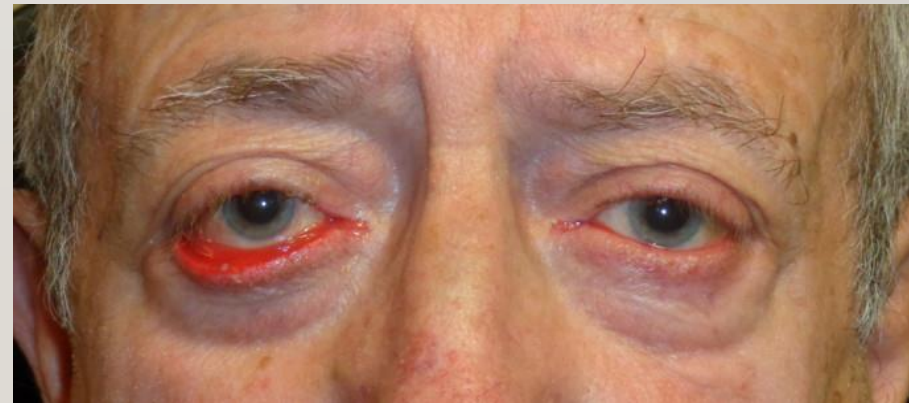
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- ✓
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# I. INCOMPLETE EYELID CLOSURE

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- Ectropion
  - Involutional-due to horizontal laxity of the eyelid
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# I. INCOMPLETE EYELID CLOSURE TREATMENT

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- Lagophthalmos- check Bell's reflex
- Ectropion- check if lateral alignment will help
- Check tear lake level



- Moisture Chamber Goggles at Bedtime (Tranquileyes)
- Preservative free gel or eye ointment at bedtime
- Referral to oculoplastic if lid alignment can be improved

## 2. COMMON SYMPTOMS OF DRY EYE DISEASE

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- ✓ • Redness
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- Headache
- ✓ • Itchy eyes
- ✓ • Morning crustiness

## 2.ANTERIOR BLEPHARITIS

---

- Staphylococcal aureus
- Demodex folliculorum mite
- Rosacea inflammation

# ANTERIOR BLEPHARITIS (STAPHYLOCOCCAL AUREUS)

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scales and collarettes at base of lashes

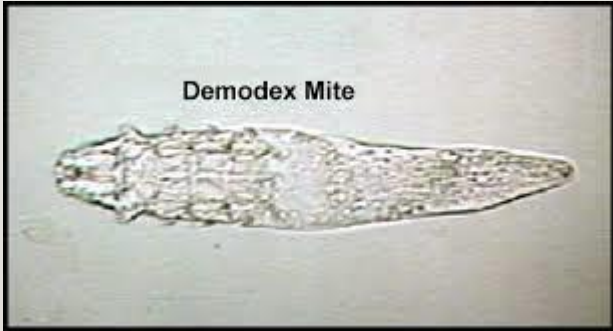
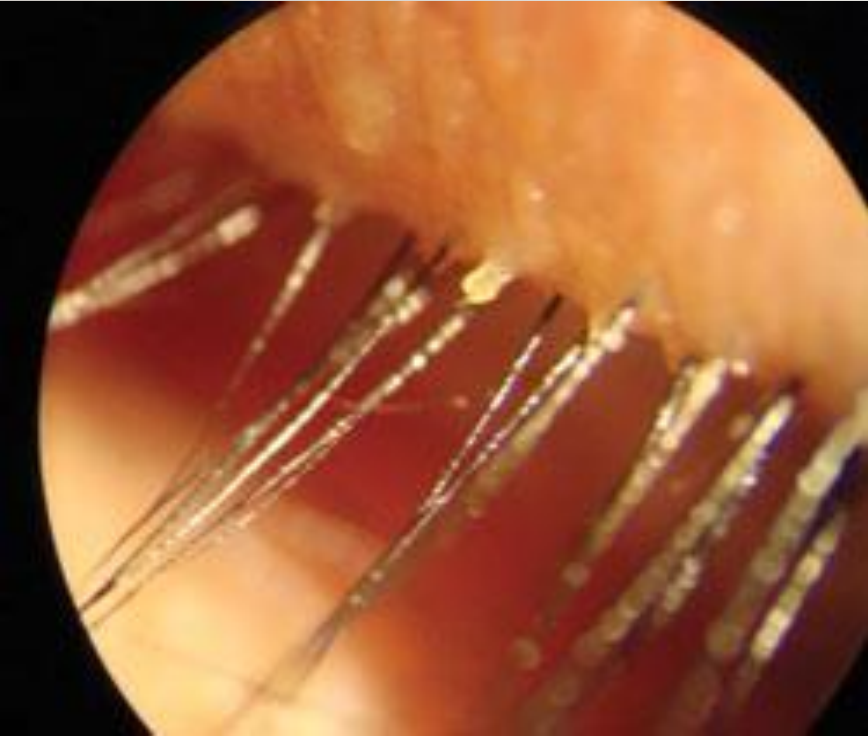


## Treatment

- Oral antibiotics (doxycycline or azithromycin)
- Lid scrubs
- Topical antibiotic and steroid pulse (Tobradex or Maxitrol ointment)
- Topical antibiotic (erythromycin)

# ANTERIOR BLEPHARITIS (DEMODEX FOLLICULORUM MITE)

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# ANTERIOR BLEPHARITIS (ROSACEA INFLAMMATION)

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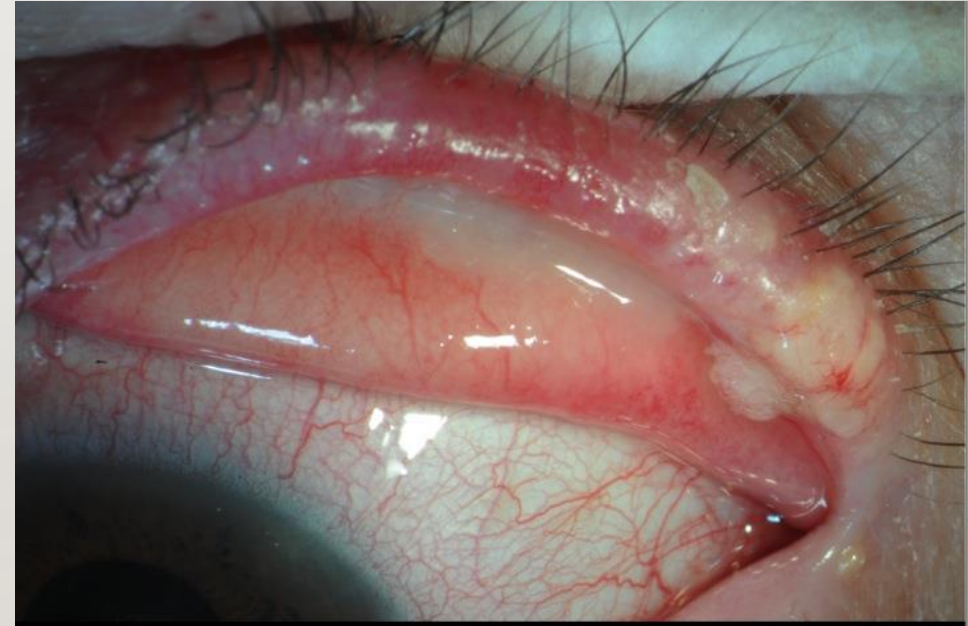
Treatment  
Oral antibiotics (minocycline)



### 3. SEBACEOUS CARCINOMA OF EYE LID

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- Often misdiagnosed as a chalazion or chronic blepharitis
- Rare, highly malignant, and potentially lethal tumor of the skin, which most commonly occurs in the eyelid
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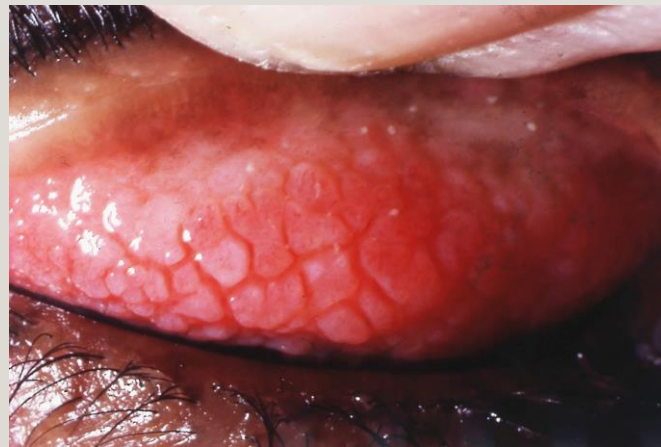
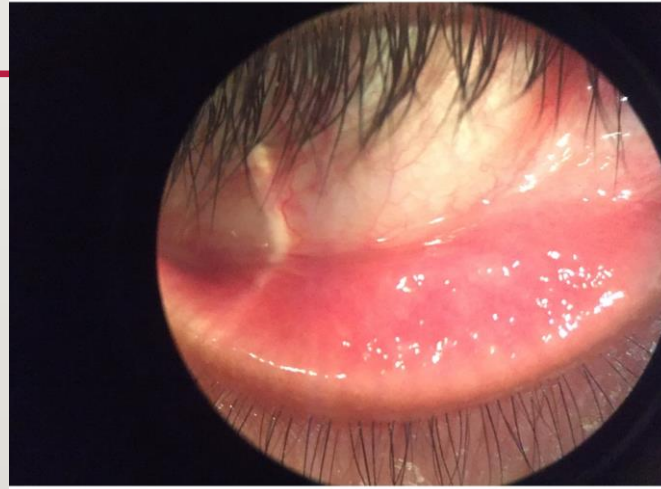
## 4. COMMON SYMPTOMS OF DRY EYE DISEASE

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- Dull aching pain/sharp stabbing pain
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# 4. ALLERGIC CONJUNCTIVITIS

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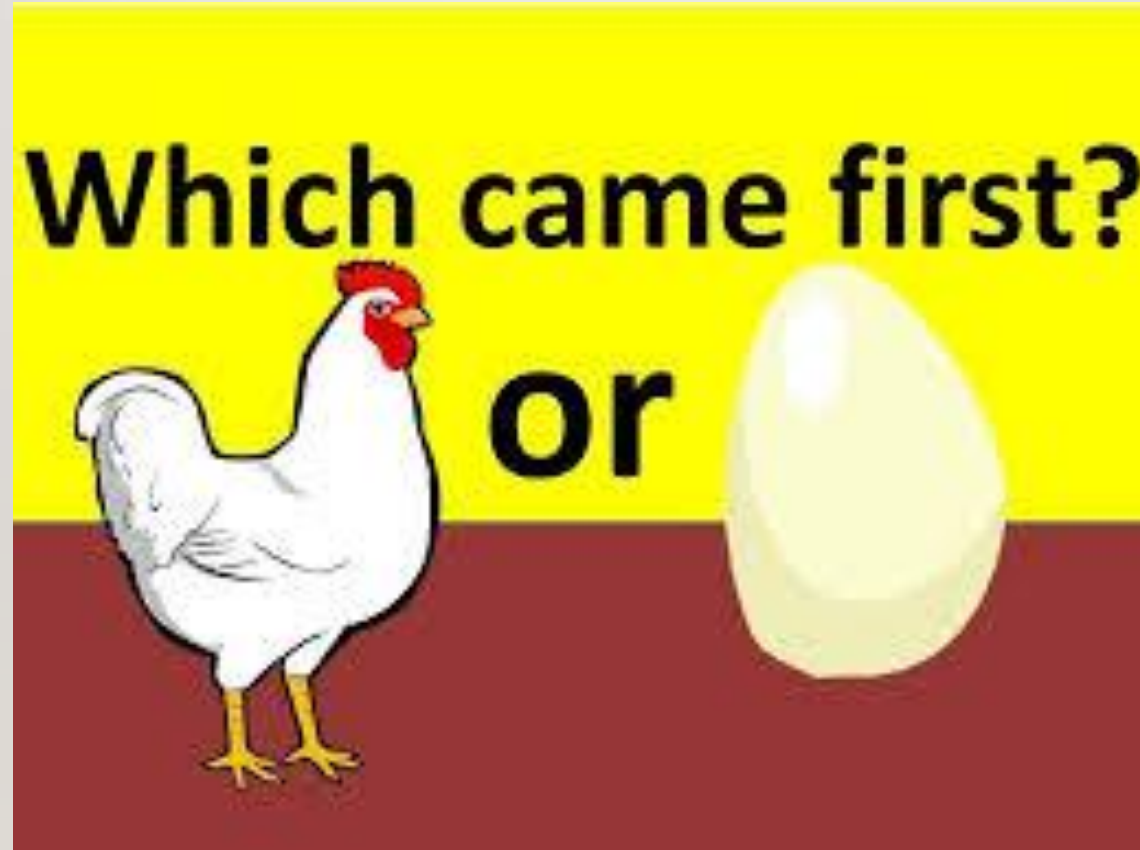


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- Clinical Findings- look at fornix and flip the eye lids
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# ROLE OF INFLAMMATION IN OCULAR SURFACE DISEASE?



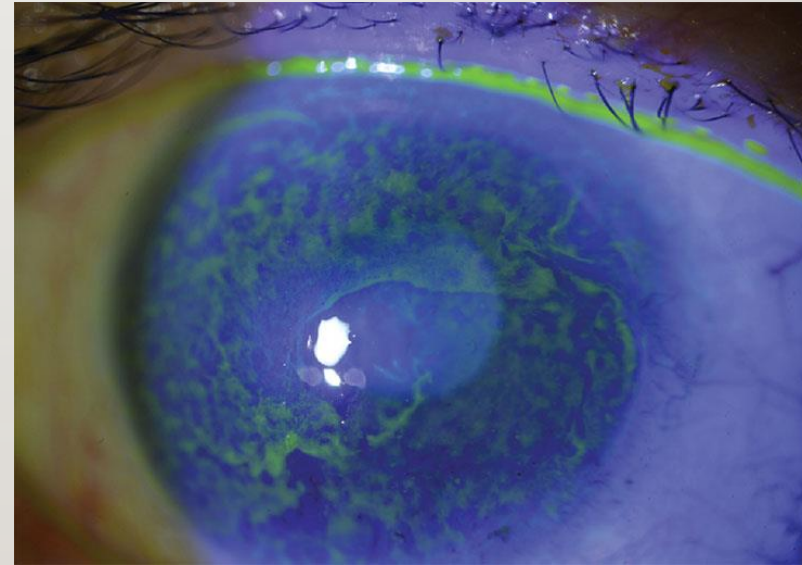
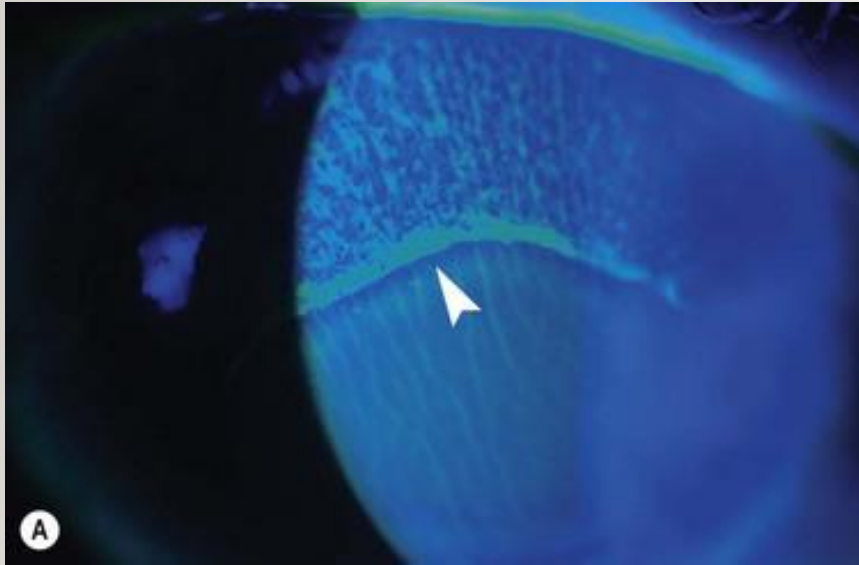
# 5. COMMON SYMPTOMS OF DRY EYE DISEASE

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- ✓ • Excessive tearing
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- Morning crustiness

## 5. WHAT IS THIS?

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A classic “waterfall” or “whorled” epithelium fluorescein staining pattern is seen on slit lamp exam.



# 5. LIMBAL STEM CELL DEFICIENCY

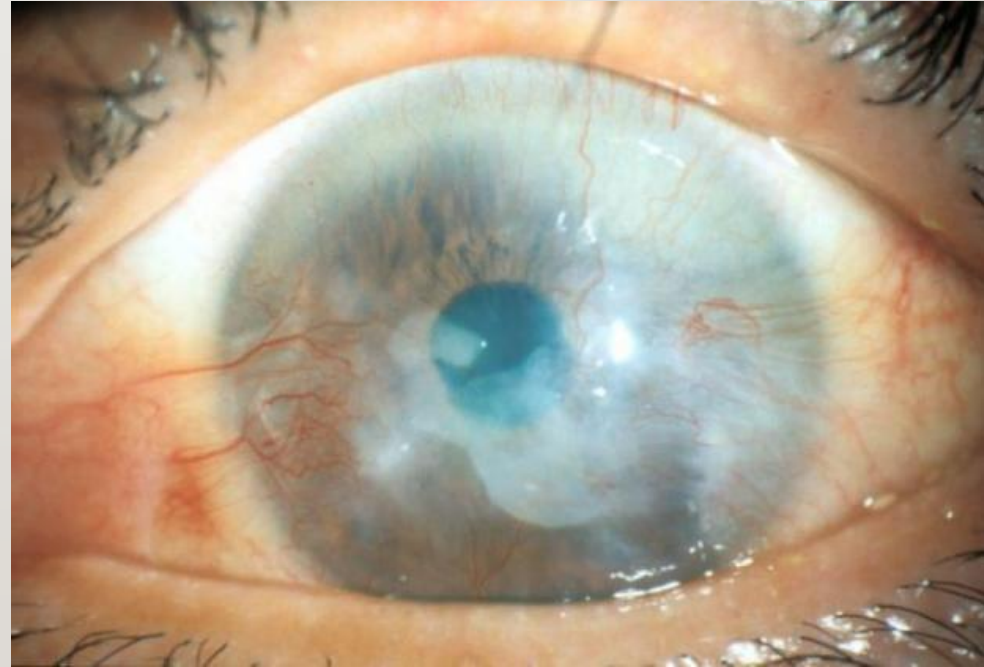
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- Corneal epithelium is a stratified squamous epithelium from which superficial cells are naturally shed and repopulated every 3-10 days
- Epithelium cells are replenished from stem cells residing in the Palisades of Vogt at the limbus
- Limbus serves as a natural barrier for conjunctiva to cross onto the epithelial surface

# 5. LIMBAL STEM CELL DEFICIENCY

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- Loss of limbal stem cells results in
  - epithelial breakdown
  - persistent epithelial defects
  - corneal conjunctivalization
  - Neovascularization
  - Cornea scarring



# 5. LIMBAL STEM CELL DEFICIENCY

- Common causes
  - Congenital- Aniridia
  - Autoimmune disease- SJS
  - Traumatic- chemical injury, chronic soft contact lens wear
  - Iatrogenic- multiple ocular surgeries

Genetic	Acquired	Idiopathic
<b>Genetic Diseases</b>	<b>Inflammatory/Autoimmune</b>	<b>Idiopathic Causes</b>
Aniridia	Steven-Johnsons Syndrome	
Peter's Anomaly	Ocular Cicatricial Pemphigoid	
Ectrodactyl-ectodermal dysplasia-clefting syndrome	Graft Versus Host Disease	
Keratitis-ichthyosis-deafness (KID) Syndrome	Vernal Keratoconjunctivitis	
Xeroderma Pigmentosum	Bullous Keratopathy	
Turner Syndrome		
Dyskeratosis Congenita	<b>Infectious</b>	
Dominantly Inherited Keratitis	Fungal	
	Bacterial	
	Viral	
	<b>Traumatic/Toxic</b>	
	Radiation	
	Chemotherapy	
	Benzalkonium Chloride (e.g. Glaucoma Medications)	
	Contact Lens Overuse	
	Limbal Surgery	
	<b>Other</b>	
	Ocular Surface tumors / Limbal Tumors	
	Pterygium/Pseudopterygium	
	Neurotrophic Keratopathy	

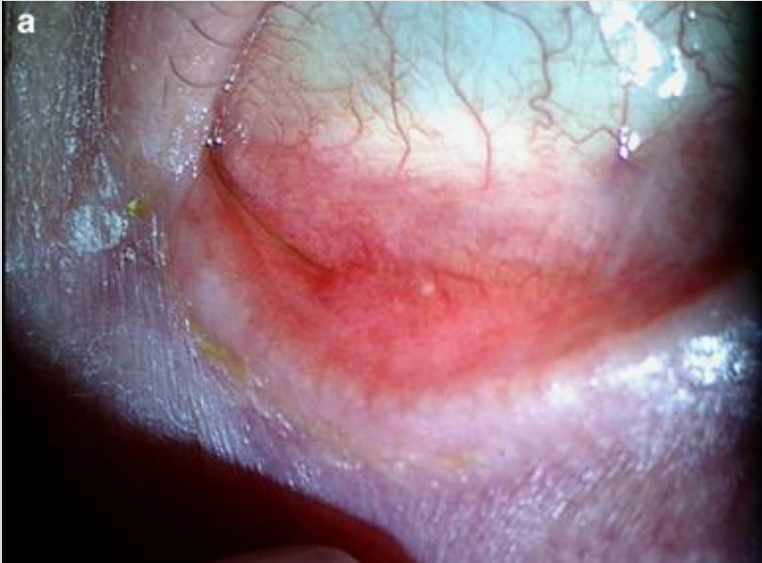
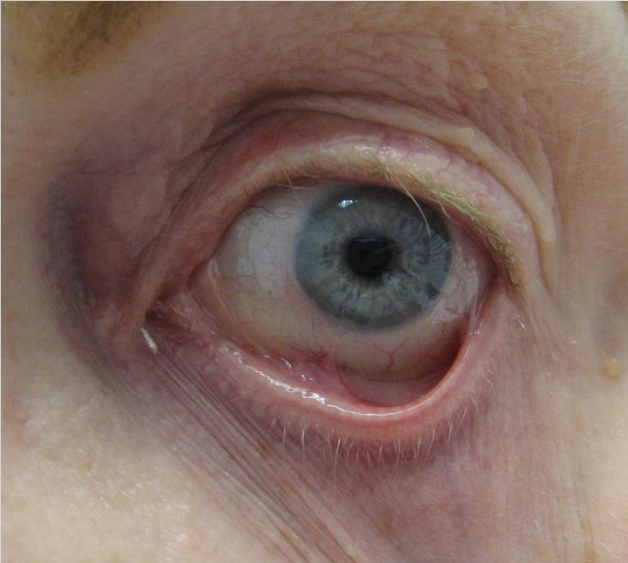
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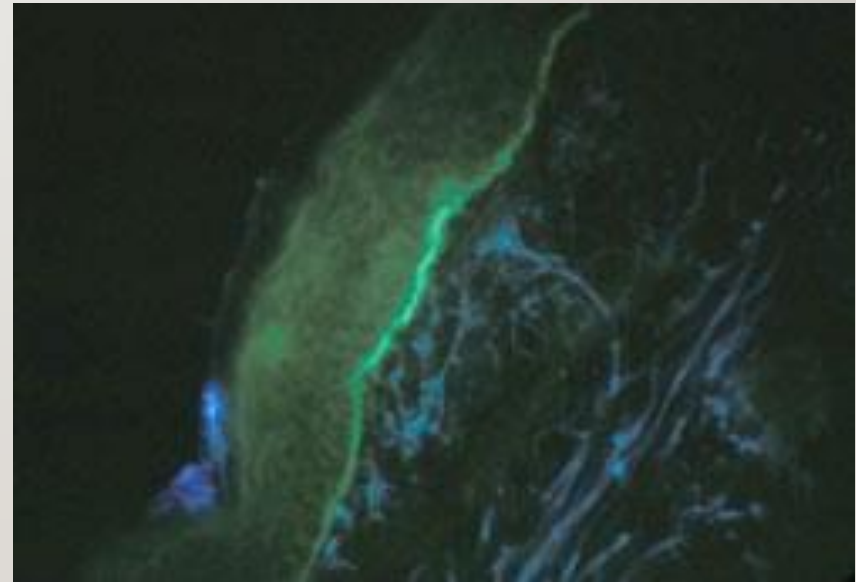
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## 6. MUCOUS MEMBRANE PEMPHIGOID (MMP)/ OCULAR CICATRICAL PEMPHIGOID (OCP)

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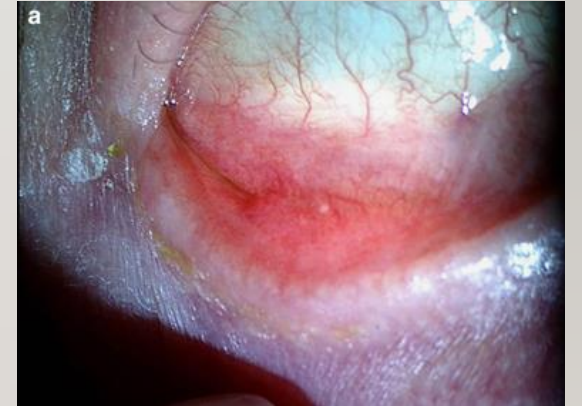
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- Ask about bleeding in gums
- Mostly older women
- Definitive diagnosis is by conjunctival biopsy



## 6. MUCOUS MEMBRANE PEMPHIGOID (MMP)/ OCULAR CICATRICAL PEMPHIGOID (OCP)

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- Early disease is chronic dry eye symptoms!
- Chronic conjunctivitis
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  - Stage 3: Symblepharon formation
  - Stage 4: Ankyloblepharon- surface keratinization



## 6. PSEUDO-MUCOUS MEMBRANE PEMPHIGOID (MMP)

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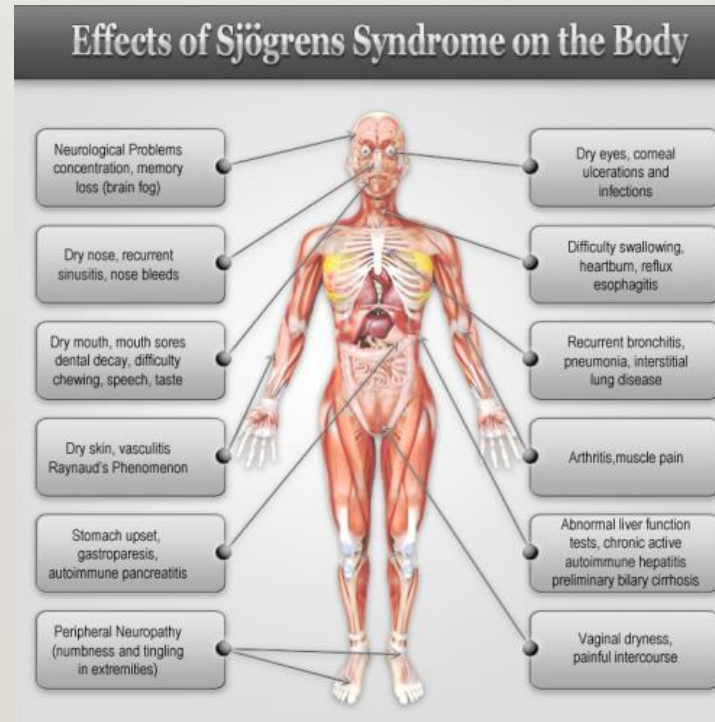
- Looks just like MMP but conjunctival biopsy is negative
- Patient has history of chronic glaucoma drops usage
- Patient is male





# 7. SYSTEMIC AUTO-IMMUNE DISEASES WITH OCULAR PRESENTATIONS

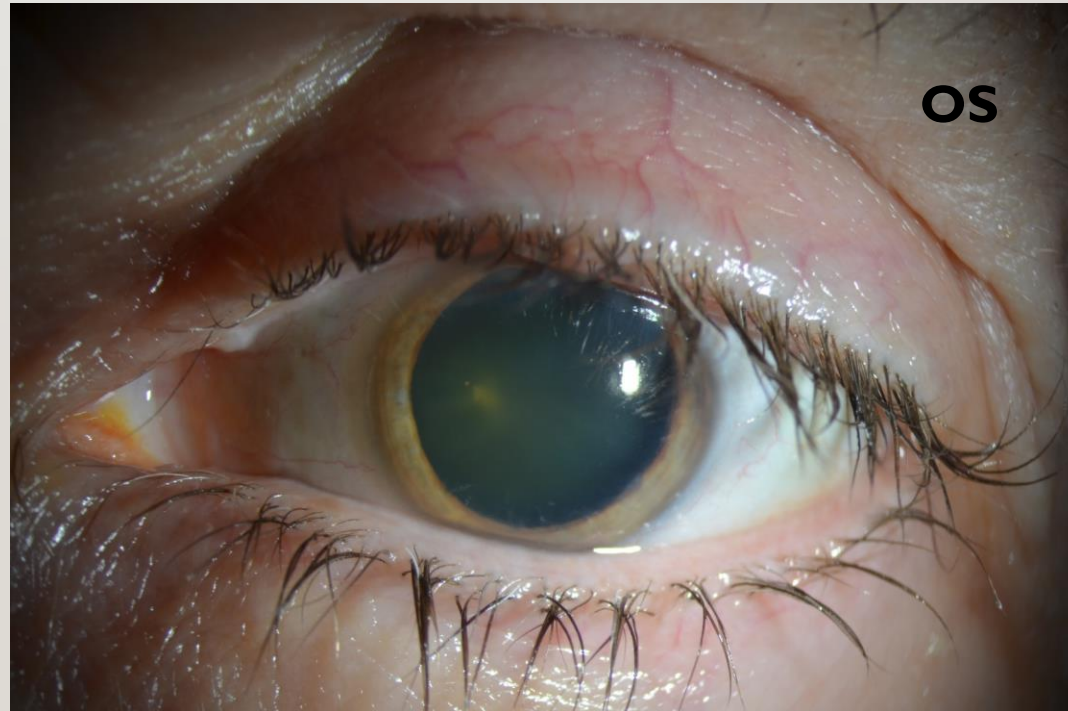
- Sjögren's Syndrome
- Rheumatoid Arthritis
- Wegener's Granulomatosis
- Sarcoidosis



# 7. CASE PRESENTATION

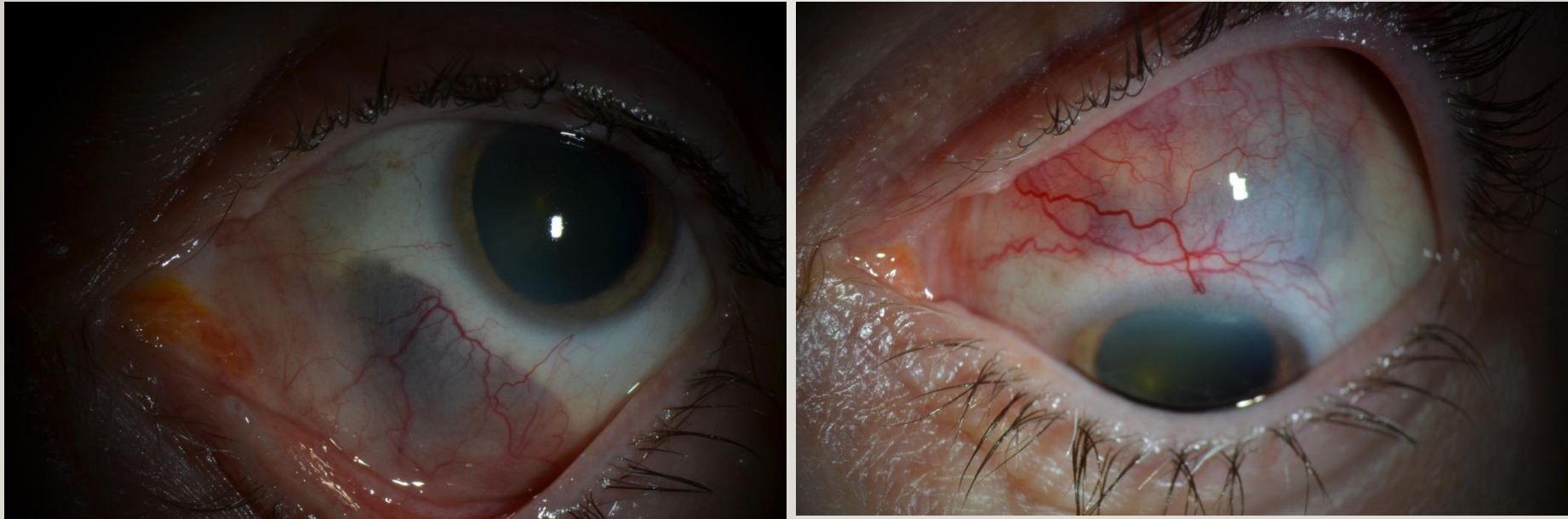
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- 77 yo Caucasian F, thinks she is being referred for cataracts and dry eyes.
- Va 20/30 and 20/70



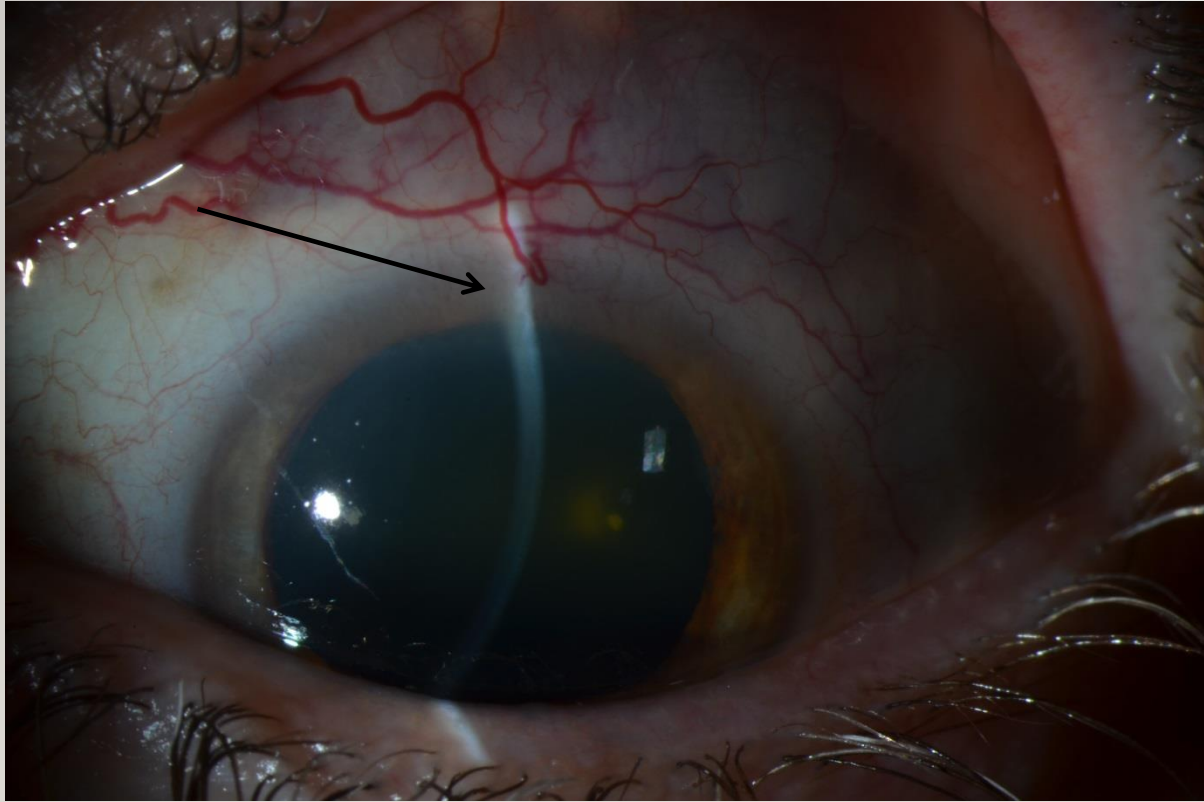
## 7. CASE

---



Scleral malacia OU (OS > OD),

# CASE



Superior PUK OS

Phone :                      Gender : Female                      Date of birth : 16 Sep 1938

Indication :


Scleritis OU on B-scan

# 7. CASE

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- PMH:
  - Breast cancer, s/p segmental mastectomy 2008
  - Recently diagnosed with lymphoma, s/p bone marrow biopsy
  - Also s/p 3 separate lung biopsies showing inflammation
- Differential?
  - Wegners, Sarcoid, metastatic malignancy

# 7. CASE

- Additional Work-up?
  - ANCAs, ANA, lysozyme, ACE, TB, RPR, CXR
  - Request lung biopsy records, looking for granulomas

Admitting	Wu, Jennifer L	3/12/2015 1000 csalazar	Z32566
Ordering	WU, JENNIFER L	Scheduled	Spec # 1141864
Attending	Wu, Jennifer L	3/12/2015 0951 csalazar	MR #
Family	Schaufele, Julie	Collected	6247
Patient Type	DOB	Sex Admit 3/12/2015	Received
LABORATORY	09/16/1938	F Dischg 3/12/2015	3/12/2015 1000 csalazar
			Visit # 129656

Test	Result	Flag	Range	Units	Date/Time/Tech	
<b>REFERENCE LAB</b>						
Antimyceloperoxidase (MPO) Abs	<9.0		0.0-9.0	U/mL	3/17/15 1338 *BN	OBN
Antiproteinase 3 (PR-3) Abs	* >100.0	H	0.0-3.5	U/mL	3/17/15 1338 *BN	OBN
Cytoplasmic (C-ANCA)	* 1:640	H	Neg:<1:20	titer	3/17/15 1338 *BN	OBN
Perinuclear (P-ANCA)	<1:20		Neg:<1:20	titer	3/17/15 1338 *BN	OBN
The presence of positive fluorescence exhibiting P-ANCA or C-ANCA patterns alone is not specific for the diagnosis of Wegener's Granulomatosis (WG) or microscopic polyangiitis. Decisions about treatment should not be based solely on ANCA IFA results. The International ANCA Group Consensus recommends follow up testing of positive sera with both PR-3 and MPO-ANCA enzyme immunoassays. As many as 5% serum samples are positive only by EIA. Ref. AM J Clin Pathol 1999;111:507-513.						
Atypical pANCA	<1:20		Neg:<1:20	titer	3/17/15 1338 *BN	OBN
The atypical pANCA pattern has been observed in a significant percentage of patients with ulcerative colitis, primary sclerosing cholangitis and autoimmune hepatitis.						
Fax To:726-2011 SCHAUFELE, JULIE Fax To:1-405-942-9219 TOMA,ALEDA A. MD Fax To:1-405-271-3680 WU, JENNIFER L.						
RA Latex Turbid.	<10.0		0.0-13.9	IU/mL	3/17/15 1338 *DA	ODA
**Verified by repeat analysis**						
Fax To:726-2011 SCHAUFELE, JULIE Fax To:1-405-942-9219 TOMA,ALEDA A. MD Fax To:1-405-271-3680 WU, JENNIFER L.						
QuantIFERON TB Gold	Negative		Negative		3/17/15 1338 *BN	OBN
The specimen received for QuantIFERON testing was incubated by the ordering institution. Specific procedures outlined in our Directory of Services and in the package insert for the QuantIFERON Gold (In Tube) test must be followed to enable for proper stimulation of cells for the production of interferon gamma.						
QuantIFERON Criteria	SPRCS				3/17/15 1338 *BN	OBN
To be considered positive a specimen should have a TB Ag minus Nil value greater than or equal to 0.35 IU/mL and in addition the TB Ag minus Nil value must be greater than or equal to 25% of the Nil value. There may be insufficient information in these values to differentiate between some negative and some indeterminate test values.						
Name:	FINCH, BARBARA A	Final Report				
MR #:	6247					
Test:	ANCA PROFILE, RA, TB GOLD TEST-QUANTA FERRIN, RA					

H = High	HC = High Critical
L = Low	LC = Low Critical
>= High Delta	<= Low Delta

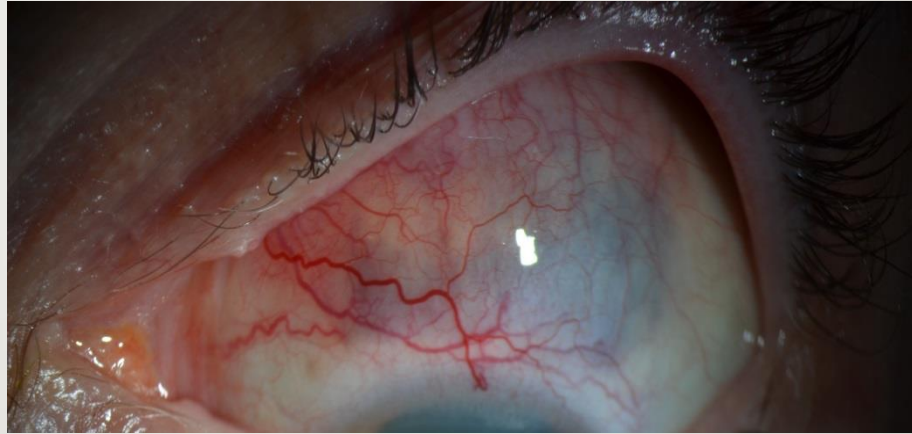
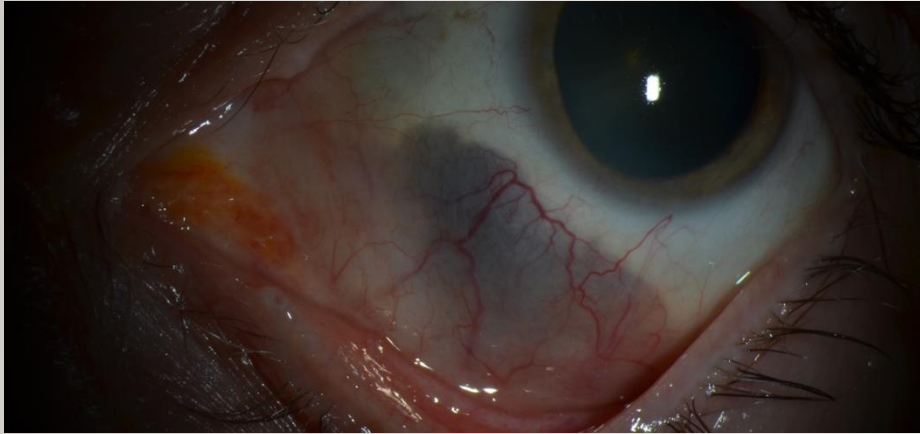
Printed: 3/17/2015 1:55:18PM SingleSpecimenFax.rpt Page 1 of 2

# 7. CASE

---

- Initial Treatment
  - High dose IV steroids and rituximab (antibody binds to CD-20 on B cells)
  - Had trouble tolerating high dose oral steroids
  - Added Methotrexate MTX (antimetabolite, inhibition of T cell activation)

# Initial Presentation

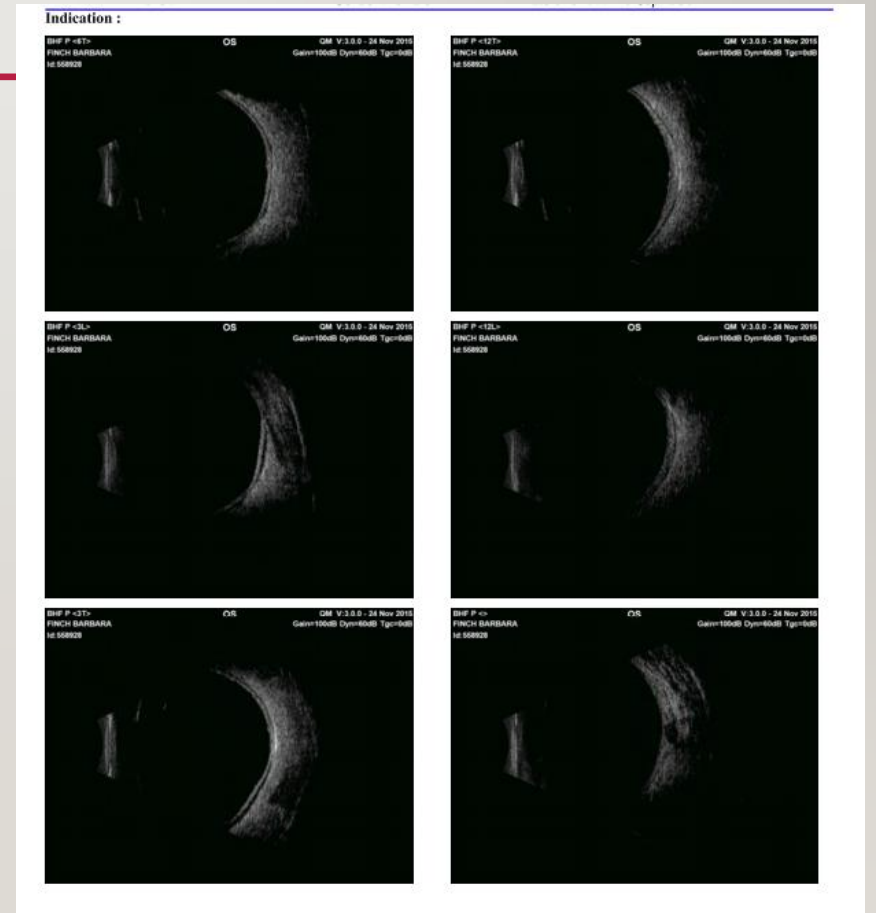


# 5 months later after Rituximab infusions complete and on MTX





6 months later, ready for cataract surgery!



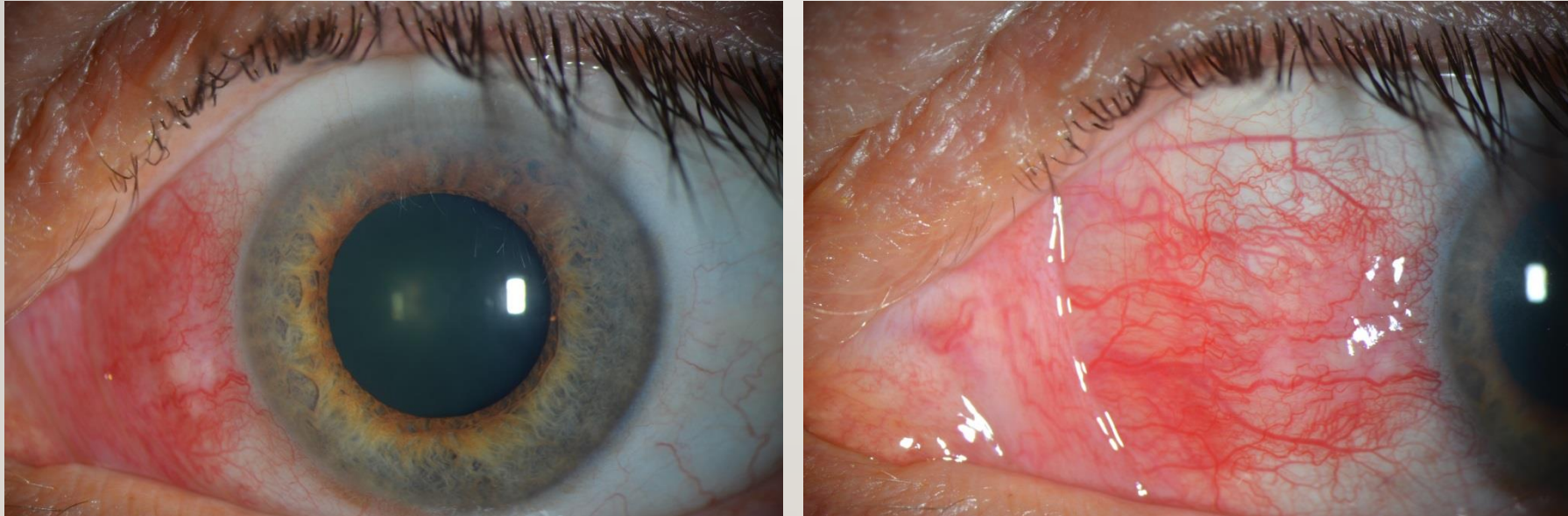
# 8. COMMON SYMPTOMS OF DRY EYE DISEASE

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- ✓ • Sensitivity to light
- ✓ • Redness
- Fluctuating vision
- ✓ • Dull aching pain/sharp stabbing pain
- ✓ • Sandy/foreign body sensation
- Excessive tearing
- ✓ • Headache
- Itchy eyes
- Morning crustiness

## 8. INFLAMED PINGUECULUM/ SCLERITIS

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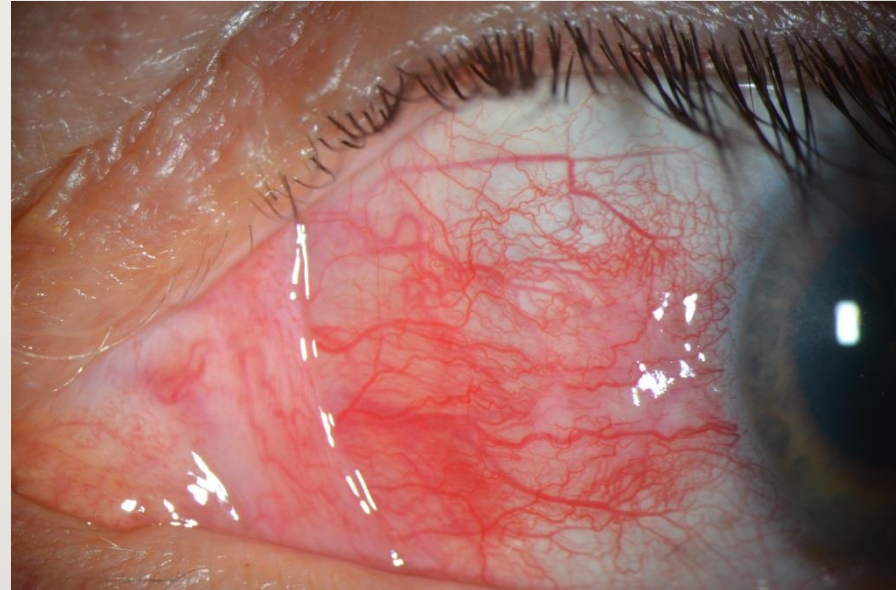
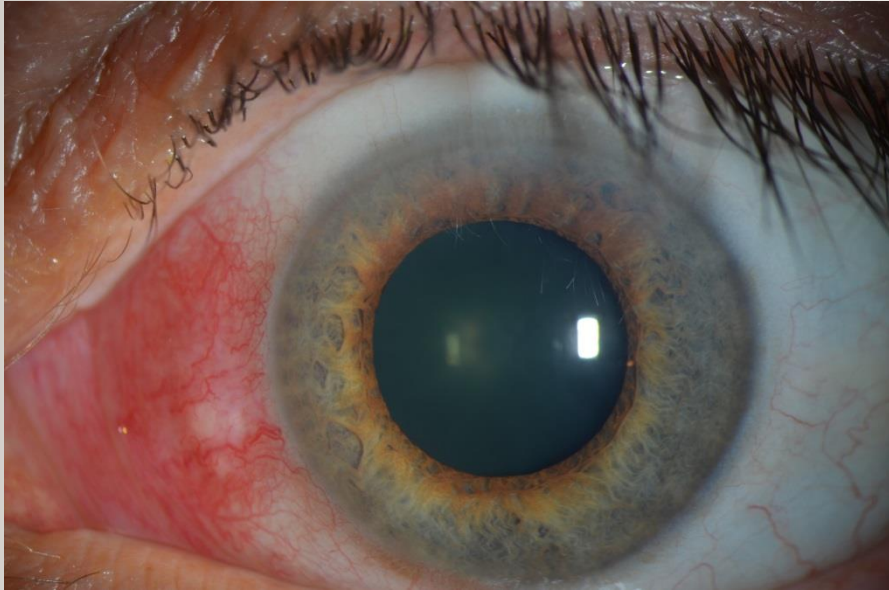
56 yo white Male referred by retina specialist for “inflamed pingueculum” OS

# 8. CASE PRESENTATION

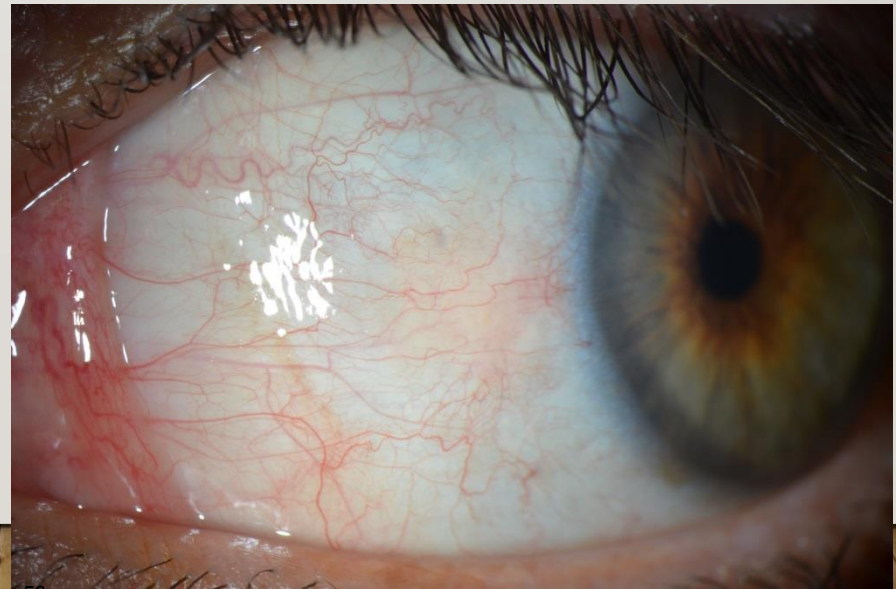
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- What do you want to know?
  - PMH: HTN, Gout (on allopurinol)
  - POH: CSR OU
- Differential: Sectoral Scleritis OU
- Additional Work-up? Does not blanch with epinephrine
- Labs: ANCA, ANA, lysozyme, ACE, CXR- all negative
- Initial Treatment: PF QID OU

## Initial Presentation

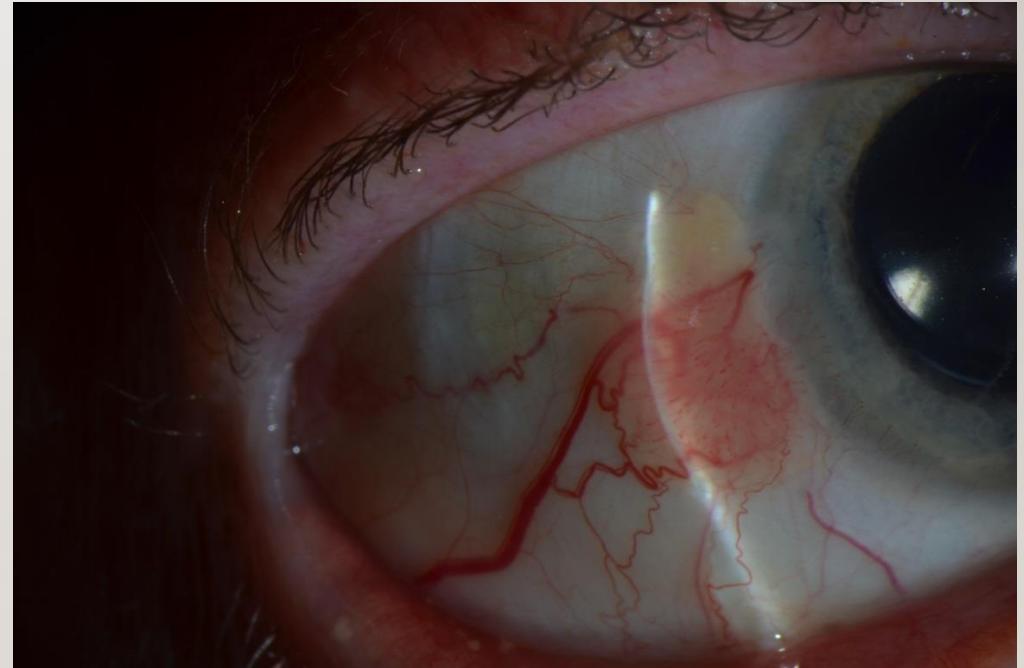
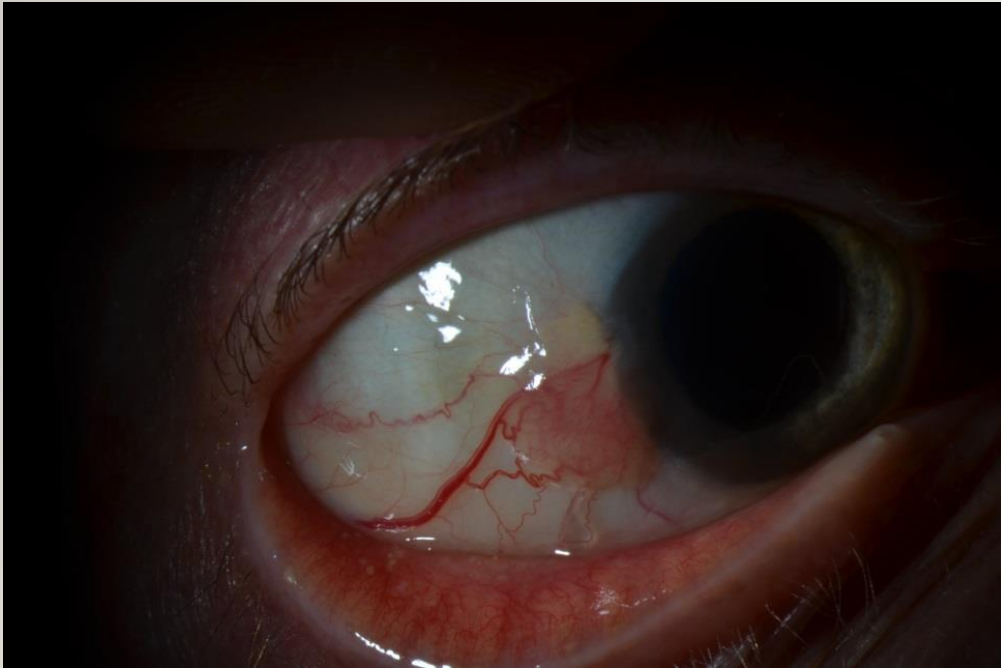


## After 1 month on PF QID



## 9. WHAT IS THIS?

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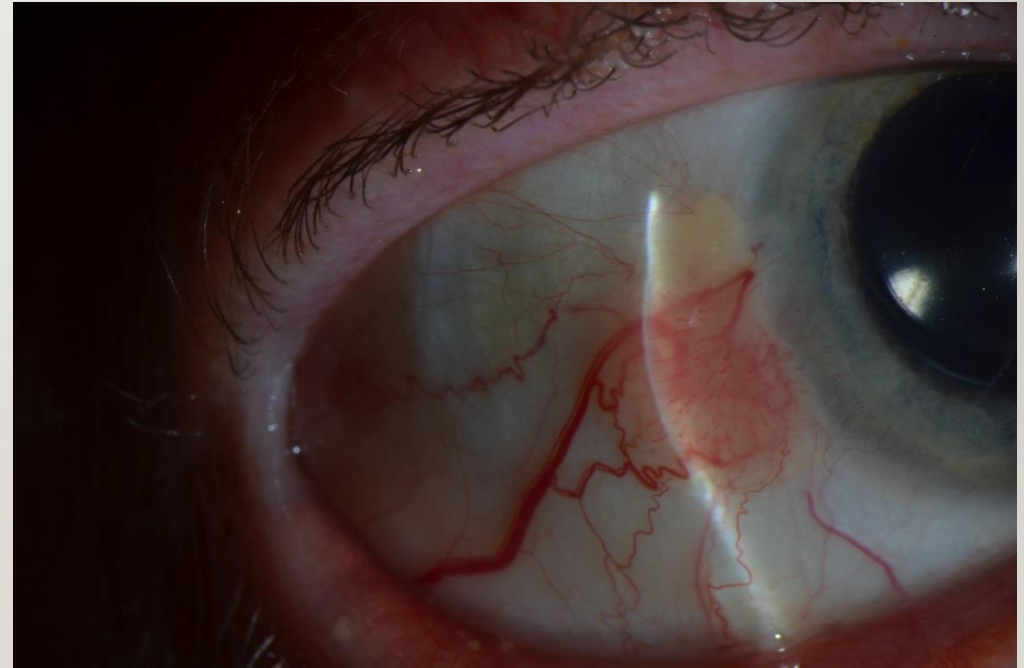
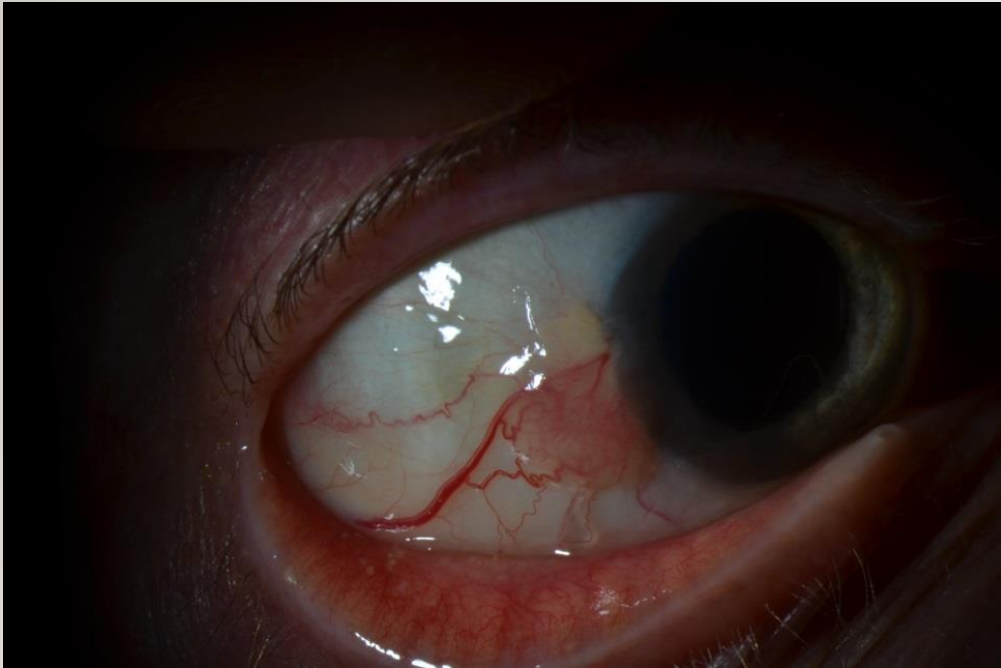
## 9. CASE PRESENTATION

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- 73 yo Caucasian Male referred for frequent dry eyes OD > OS, and blurry vision OD > OS.
- POHx: s/p CE/IOL OD, s/p blepharoplasty OU
- Meds: Lotemax QD OU, oral doxycycline PO

## 9. CONJUNCTIVAL INTRA-EPITHELIAL NEOPLASM (CIN)

---





# BIOPSY PERFORMED

Chart: Received: 06/25/2015  
Copy: BRIAN K FIRESTONE MDCopy: RHO AN VB

## REQUISITION INFORMATION:

Right eye conjunctival lesion. Preop dx: Right eye benign neoplasm of conjunctiva.

## GROSS:

Specimen labeled conjunctiva lesion consists of a tan and brown piece of tissue measuring 12 x 7 x 3 mm. The specimen is cut in a bread loaf fashion and submitted for routine section.

UP/vb

## DIAGNOSIS:

**Conjunctiva-Excision, Right  
- Conjunctival intraepithelial neoplasia with severe atypia. (See comment).**

## COMMENT:

This material has been submitted to Dr. Brian Firestone for his review. The following dictation is his.

Microscopic examination of specimen labeled "Conjunctival lesion" discloses tissue consistent with bulbar conjunctiva. Within the epithelium is an abrupt transition zone to an area of acanthosis and atypical squamous cells containing abundant eosinophilic cytoplasm. Atypical squamous cells comprise the deep and superficial epithelium, but the basement membrane is intact. Mitotic figures are noted superficial to the basal epithelial layer. The lesion extends to one margin of resection, presumed to be the corneal margin. We see no evidence of invasive carcinoma.

## SIGNATURE:

*Ruth H. Oneson MD*  
RUTH H ONESON MD  
Pathologist  
(Case signed 06/25/2015 at 0943)

# 10. NEUROTROPHIC KERATITIS

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- “You can’t heal something you can’t feel”
- Corneal sensation test (cotton tip)
- Etiology (loss of CN 5, Herpes keratitis, corneal transplant, multiple ocular surgeries, diabetes, chronic contact lens wear)

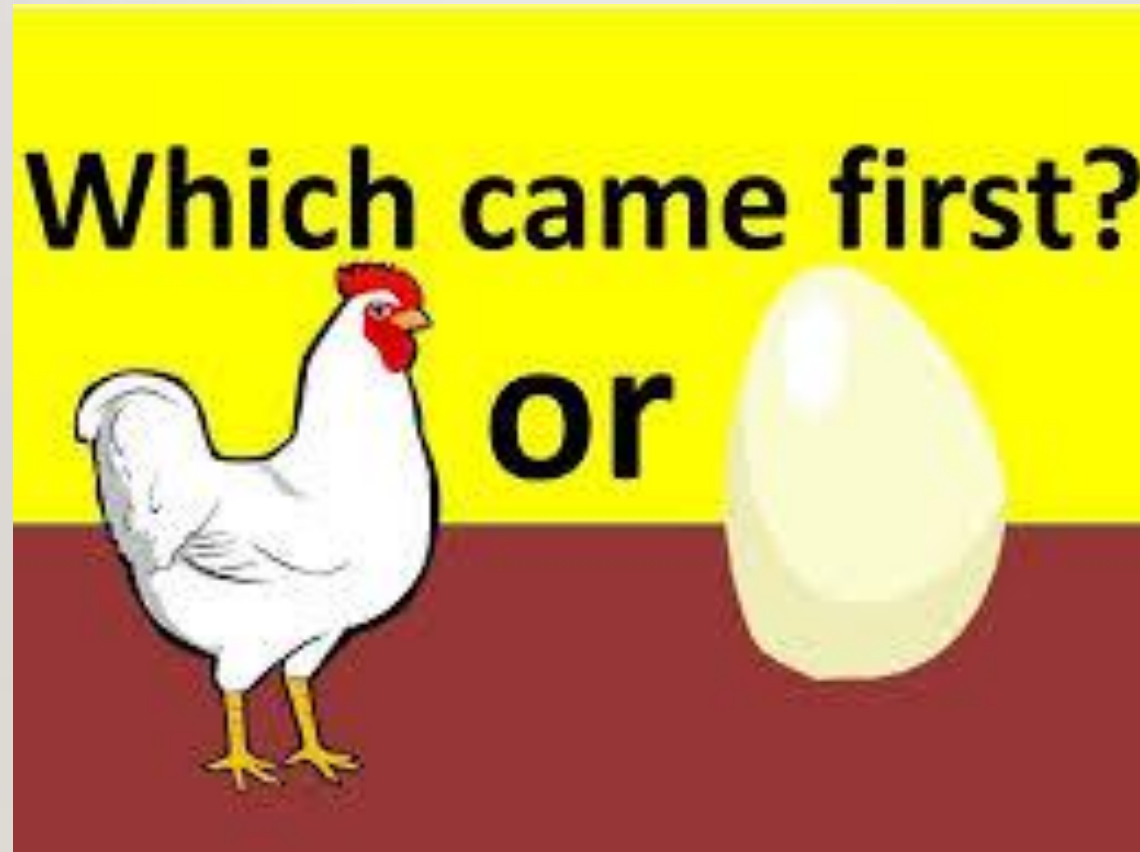


# TREATMENT

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- Bandage contact lens
- Prokera/Ambio disc
- Erythromycin Ointment
- Lateral tarsorrhaphy

# ROLE OF INFLAMMATION IN OCULAR SURFACE DISEASE?



# SUMMARY

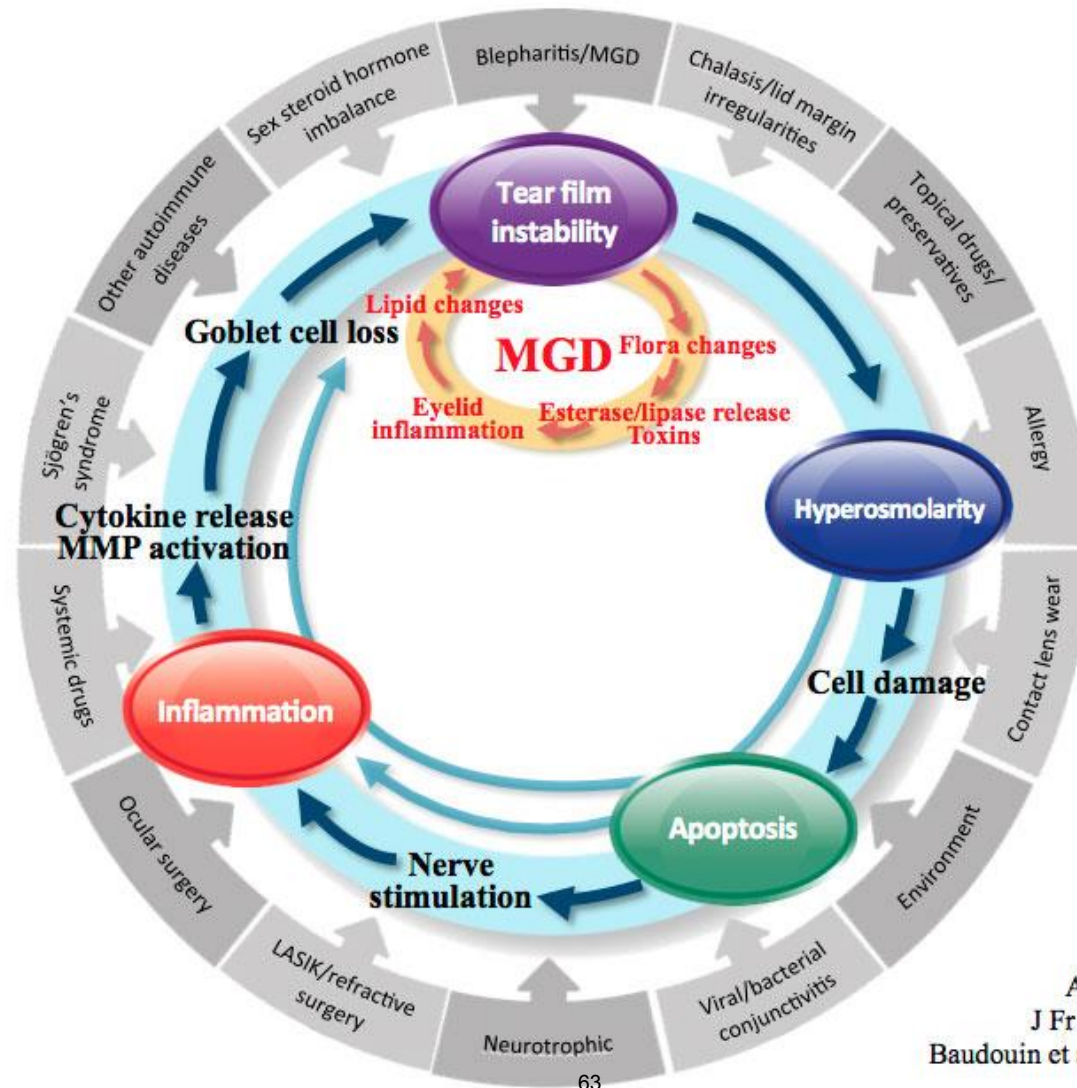
---

- Exam eyelid anatomy to rule-out anatomical reason for dry eye symptoms.
- Examine the conjunctiva carefully and treat conjunctival diseases. Refer out for any suspicious looking lesions.
- Keep systemic diseases in the back of your mind, you could save your patient's life!

**THE KEY TO TREATING OCULAR  
SURFACE DISEASE IS TO TREAT THE  
UNDERLYING CAUSE**

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# Key mechanisms of ~~dry eye disease~~: the vicious circle theory <sup>OSD</sup>



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

# SOURCES OF INFLAMMATION

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- Blepharitis
- Chronic allergic conjunctivitis
- Desiccation of the tear film (wind, low humidity)
- Decreased aqueous production
- Auto-immune diseases (Sjögren's Syndrome)
- Ocular surgery



# DISRUPTION TO OCULAR SURFACE AND CORNEAL SENSATION

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- Contact lens wear
- Topical medications (glaucoma drops switch to preservative free)
- Laser refractive surgery
- Systemic Disease (diabetes)
- Infection (herpes keratitis)
- Trauma (damage to 5<sup>th</sup> cranial nerve)

# THANK YOU!

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Questions?

[jennywu@coastal-vision.com](mailto:jennywu@coastal-vision.com)

# WET LAB

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Ambiodisc

# HOW TO USE AMBIO DISK- DEMONSTRATION

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- Remove from package, keep serial number
- Partially open sterile package
- Place lid speculum in the eye
- Use sterile Q-tip to dry cornea surface
- Use non-toothed forceps to remove Ambiodisc
- Confirm “P” side down
- Smooth onto cornea
- Place bandage contact lens
- Remove lid speculum
- Instill anti-biotic drop

# Jennifer Lee Wu, M.D.

## Cornea, Cataract, and Refractive Specialist

Coastal Vision Orange  
293 South Main Street, Suite 100  
Orange, CA 92868

Telephone: (714)771-1213  
Fax: (714) 771-7126  
Email: jennywu@coastal-vision.com

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### **Education:**

- 2005 B.S. in Molecular, Cellular, Developmental Biology  
Yale College, New Haven, Connecticut
- 2009 M.D.  
Yale University School of Medicine, New Haven, Connecticut

### **Postdoctoral Training:**

- 2009-10 Internship in Internal Medicine  
Yale New Haven Hospital, New Haven, Connecticut
- 2010-13 Residency in Ophthalmology  
Doheny Eye Institute/LAC-USC Medical Center, Los Angeles, California
- 2013-14 Clinical Fellowship in Cornea and External Disease  
Doheny Eye Institute/University of Southern California, Los Angeles, California

### **Board Certification:**

- 2014 Diplomat, American Board of Ophthalmology

### **Medical Licensure:**

- 2011 California
- 2014 Oklahoma

### **Academic Appointments:**

- 2014- 16 Clinical Assistant Professor in Cornea and External Disease and Refractive  
Dean McGee Eye Institute, University of Oklahoma Health Sciences Center,  
Oklahoma City, Oklahoma
- 2013-14 Clinical Instructor in Ophthalmology  
Keck Medical Center at University of Southern California, Los Angeles,  
California

### **Private Practice:**

- 2016-Present Coastal Vision Medical

**Teaching Experience:**

- Teaching medical students, residents, and fellows in the eye clinic and operating room
- Presenting lectures on cornea and external disease to ophthalmology residents

**Mentoring Experience:**

- Mentoring multiple medical students and residents in clinical research project design and manuscript preparation resulting in publications and conference presentations
- Participating faculty mentor for American Medical Women's Association at University of Oklahoma– role model for female medical students and undergraduate pre-medical students

**Honors and Awards:**

- 2005 Edgar Boell Prize, Yale College  
Awarded best senior thesis in the Health Sciences
- 2009 Farr Research Scholar, Yale University School of Medicine  
Awarded honors medical thesis
- 2012 ARVO National Eye Institute Travel Grant, National Eye Institute  
Awarded grant for outstanding research abstract
- 2012 Henry & Lilian Nesburn Award, Henry & Lilian Nesburn Foundation  
Awarded best resident research manuscript
- 2013 Doheny Resident Research Award, Doheny Eye Institute  
Awarded exceptional ARVO presentation

**Peer Reviewed Publications:**

**Articles**

1. Mckay T, Hjortdal J, Sejersen J, Asara J, **Wu JL** and Karamichos D. Endocrine and Inflammatory Factors in Keratoconus: Role of Hormones in the Stromal Microenvironment. *EMBO reports*. Accepted for publication April 2016.
2. Royer D, Gurung H, Jinkins J, Geltz J, **Wu JL**, Halford W, and Carr DJ. A Highly Efficacious HSV-1 Vaccine Blocks Viral Pathogenesis and Prevents Corneal Immunopathology Via Humoral. *Journal of Virology*. Accepted for publication March 2016.
3. **Lee JC**, Wang MY, Damodar D, Sadun AA, Satta SR. Headache and whiteout vision as the presenting symptoms in a case of Takayasu Retinopathy. *Retinal Cases & Brief Reports*. 2014; 8(4):273-275.
4. **Lee JC**, Chiu G, Bach D, Irvine J, Heur JM. Functional and visual improvement of the Prosthetic Replacement of the Ocular Surface Ecosystem (PROSE ) for irregular astigmatism. *Cornea*. 2013; 32(12):1540-1543.
5. **Lee JC**, Wong B, Srinivas S, Satta SR, Huang D, Fawzi, AA. Doppler Fourier-domain optical coherence tomography measurement of the effect of panretinal photocoagulation on retinal blood flow in poorly controlled diabetic proliferative diabetic retinopathy. *Invest Ophthalmol Vis Sci*. 2013; 54(9):6104-6111.

6. Khine, K, **Lee, JC**, Hwang, J, Francis, BA, Boyer, DS. Methyl-Sulfonyl-Methane (MSM)-Induced Acute Angle Closure. *Journal of Glaucoma*. 2013; November 14. (Epub ahead of print)
7. **Lee JC** and Shields MB. Horizontal Deviation of Retinal Nerve Fiber Layer Peak Thickness with Stratus Optical Coherence Tomography in Glaucoma Patients and Glaucoma Suspects. *Journal of Glaucoma*. 2010; 19:299-303.
8. **Lee JC**, Prado HS, Diniz JB, Miguel EC, Leckman JF, Rosario MC. Perfectionism and Sensory Phenomena: Possible Phenotypic Components of Obsessive-Compulsive Disorder. *Comprehensive Psychiatry*. 2009; 50:431-436.
9. **Lee JC** and Salchow DJ. Myelinated retinal nerve fibers associated with hyperopia and amblyopia. *Journal of AAPOS*. 2008; 12: 418-419.
10. Prado HS, Rosario MC, **Lee JC**, Hounie AG, Shavitt RG, Miguel EC. Sensory Phenomena in Obsessive-Compulsive Disorder and Tic Disorders: a review of the literature. *CNS Spectrums*. 2008; 13: 425-432.

**Presentations:**

1. ARVO 2016, Seattle, Washington
2. ARVO 2013, Fort Lauderdale, Florida
3. ARVO 2012, Fort Lauderdale, Florida
4. Yale Medical School Student Research Day 2009, New Haven, Connecticut

**Professional Memberships:**

American Academy of Ophthalmology (AAO)  
Association for Research in Vision and Ophthalmology (ARVO)  
Cornea Society  
American Society of Cataract and Refractive Surgery (ASCRS)  
Oklahoma Academy of Ophthalmology (OAO)

**Languages:**

- Fluent in Spanish (Spoken)
- Fluent in Chinese (Mandarin) (Spoken)

**Community Service:**

Volunteer Alumni Interviewer for Yale College Admissions