



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 Fee

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, a detailed course outline and presentation materials (e.g., PowerPoint presentation). Applications must be submitted 45 days prior to the course presentation date.

Please type or print clearly. ** 1 hour of CE requested **

Course Title Herpes Zoster Ophthalmicus	Course Presentation Date <div style="text-align: right; margin-right: 20px;"> 6:30pm - 8:30 pm </div> <div style="text-align: center;"> 0 5 / 2 4 / 2 0 1 7 </div>
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Course Provider Contact Information *5 @ 400 Post St.*

Provider Name		
Cynthia	Lieu	
(First)	(Last)	(Middle)

Provider Mailing Address			
Street <u>2100 Webster, #214</u>	City <u>San Francisco</u>	State <u>CA</u>	Zip <u>94115</u>

Provider Email Address <u>clieu@pacificeye.com</u>

Will the proposed course be open to all California licensed optometrists?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
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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?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
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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		
Karen	Oxford	W.
(First)	(Last)	(Middle)

License Number <u>G78840</u>	License Type <u>CA Medical License</u>
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Phone Number <u>(415) 923-3007</u>	Email Address <u>keramom@pacificeye.com</u>
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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

Herpes Zoster Ophthalmicus
May 24, 2017

Karen Oxford, MD

Herpes zoster ophthalmicus is a common disease due to the reactivation of the Varicella virus manifesting in the first branch of the trigeminal nerve. In addition to the skin lesions, herpes zoster ophthalmicus can affect the ocular structures for years. Corneal complications can occur early or late. The medical management of zoster includes antivirals and supportive care. The role of the shingles vaccine is not clearly understood. The vaccine may lessen the signs and symptoms of zoster in persons already vaccinated.

Herpes Zoster Ophthalmicus
Wednesday, May 24th 2017

Karen Oxford, MD

- I. Definition
- II. Epidemiology
 - A. Varicella
 - B. Worldwide distribution
- III. Clinical Features
 - A. Dermatome distribution
 - 1. Ophthalmicus
 - 2. Trigeminal
 - B. Sine Herpete
- IV. Corneal Complications
 - A. Early
 - B. Late
- V. Medical Management
 - A. Antivirals
 - B. Supportive Care

Herpes Zoster Ophthalmicus

Karen W. Oxford, MD
Pacific Eye Associates
San Francisco, California

Herpes Zoster

- ◆ Shingles
- ◆ Varicella-zoster virus
- ◆ Chickenpox as primary infection
- ◆ Dermatomal vesicular eruption
- ◆ Reactivation was usually due to immunosuppression



Varicella-Zoster Virus

- ◆ DNA virus
- ◆ Herpes virus family
- ◆ Varicella (Chickenpox)
- ◆ Herpes zoster (Shingles)
- ◆ Humans are only known host

Zoster Pathogenesis

- ◆ Varicella virus persists in latent form
- ◆ Trigeminal ganglion or spinal ganglion
- ◆ Reactivation and viral proliferation
- ◆ Inflammation and tissue destruction
- ◆ Fourfold increase in stroke risk if HZO
- ◆ Active infection of cerebral arteries

Epidemiology

- ◆ Worldwide distribution
- ◆ Mostly older patients but half are < 60
- ◆ Average age of onset is decreasing
- ◆ No gender, racial, or seasonal predilections
- ◆ 1 million zoster cases per year in US

Latency Theory

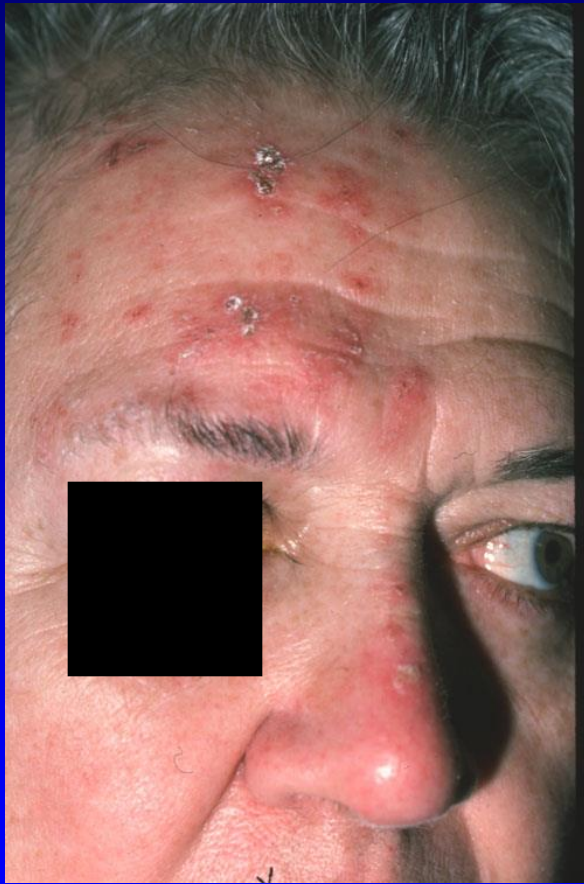
- ◆ Varicella latency in ganglion
- ◆ T-cell alterations
- ◆ Decrease in anti-varicella antibody
- ◆ Release of virus from ganglion with eruption of vesicles in dermatome

Clinical Features

Herpes Zoster

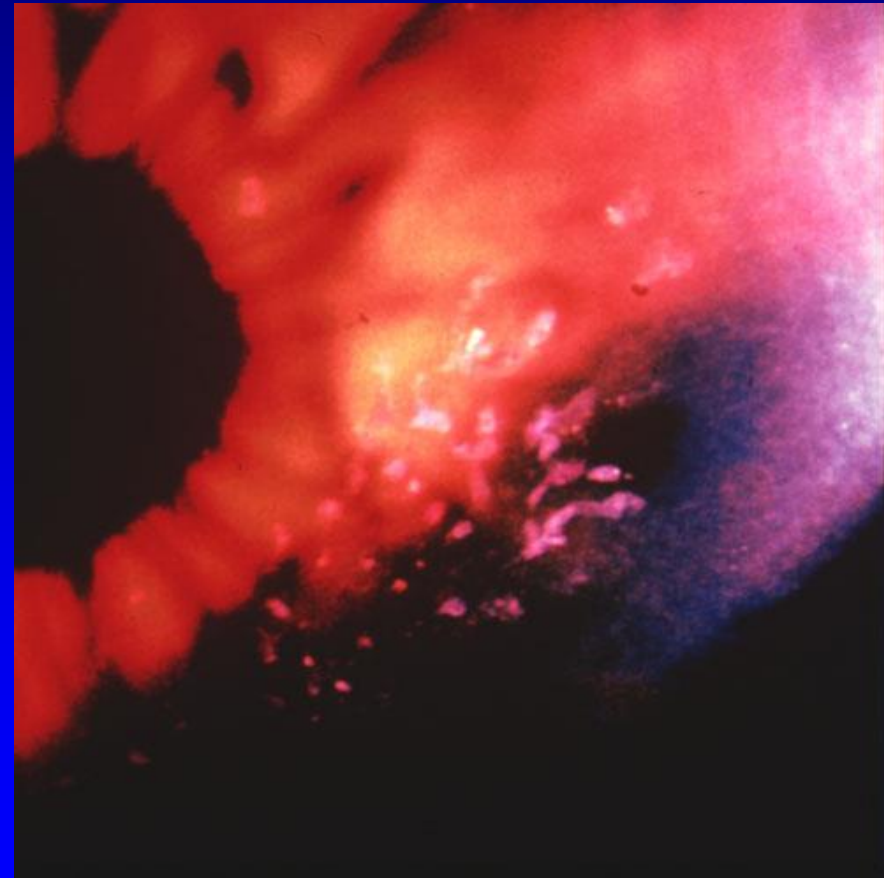
- ◆ If all three branches of trigeminal nerve are involved, the varicella-zoster virus is usually disseminated
- ◆ Immunocompromised patient
- ◆ Herpes zoster ophthalmicus if ophthalmic branch involved regardless of ocular involvement

Zoster Ophthalmicus vs. Trigeminal



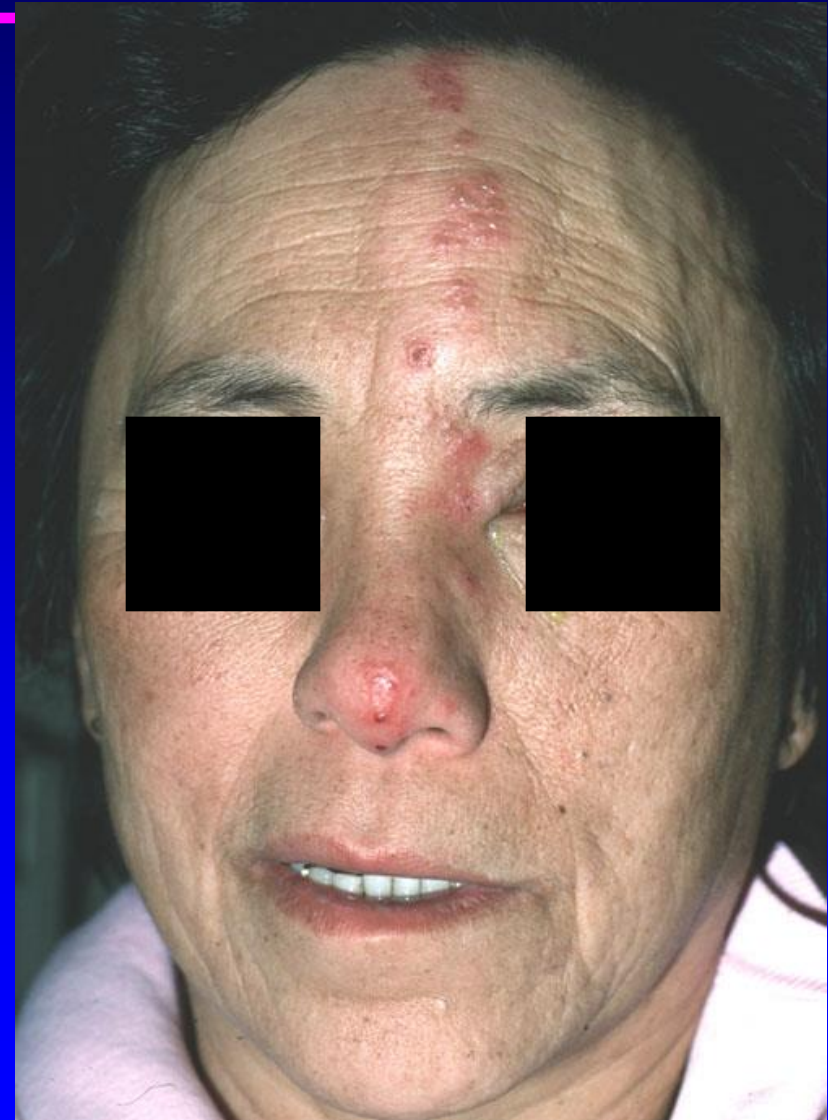
Zoster Sine Herpete

- ◆ Complications of zoster without the skin rash
- ◆ Ocular involvement alone



Hutchinson's Sign

- ◆ Vesicle formation at tip of nose
- ◆ Nasociliary nerve involvement
- ◆ 80% chance that eye is affected
- ◆ Negative sign does not exclude eye disease



Prodromal Symptoms

- ◆ Malaise or fever
- ◆ Headache
- ◆ Hyperesthesias
- ◆ Burning sensation in scalp
- ◆ Pain
- ◆ 24 to 48 hours before vesicles

Skin Signs

- ◆ Macular rash
- ◆ Vesicular
- ◆ Erythema and edema
- ◆ Lymphadenopathy
- ◆ Pustules

Day 1 vs Day 2



Severe edema



Eyelids

- ◆ Scarring of forehead and eyelid skin
- ◆ Cicatricial entropion/ectropion
- ◆ Trichiasis
- ◆ Madarosis
- ◆ Paralytic ptosis

Conjunctival Involvement

- ◆ Injection
- ◆ Follicles
- ◆ Petechia
- ◆ Vesicles
- ◆ Pseudomembranes
- ◆ Symblepharon

Corneal Complications

Punctate Epithelial Keratitis

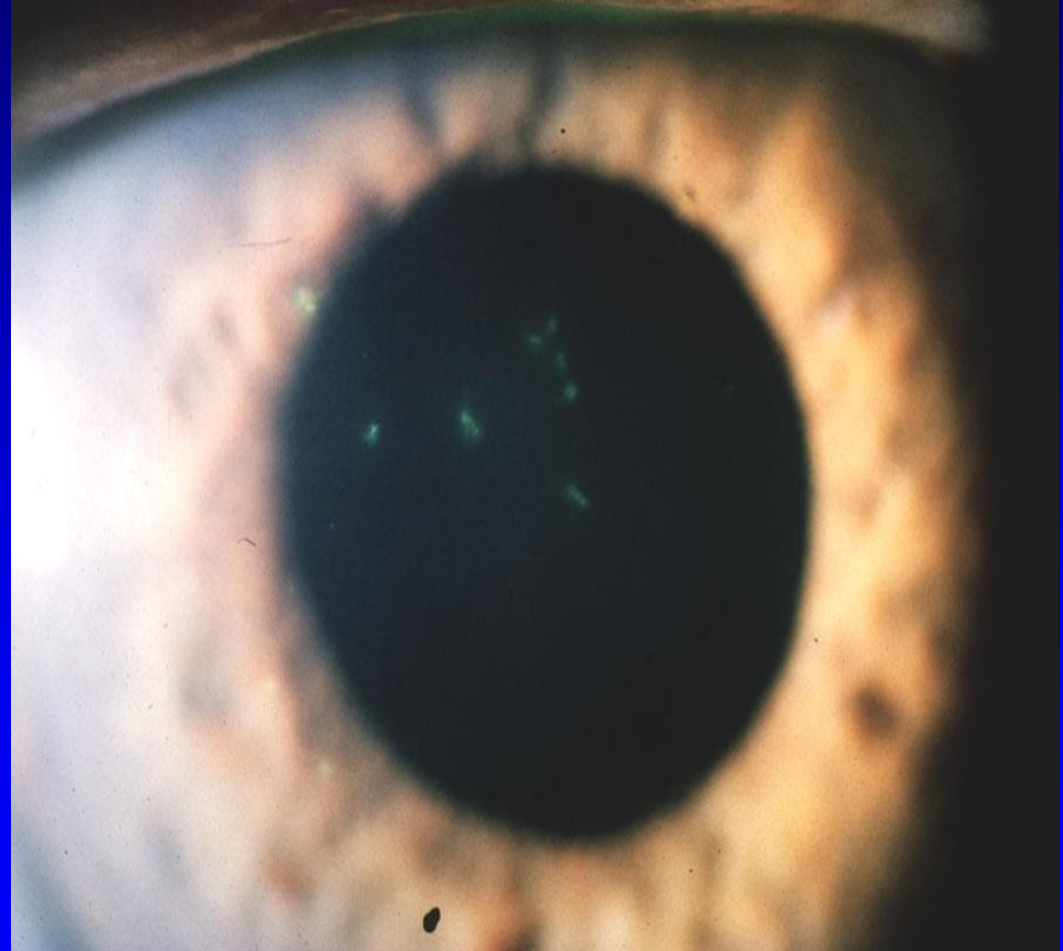
- ◆ Initial manifestation 1-10 days
- ◆ Course and blotchy epithelium
- ◆ Peripheral and multiple
- ◆ Small and raised
- ◆ Stain with rose bengal



Corneal Complications

Punctate Epithelial Keratitis

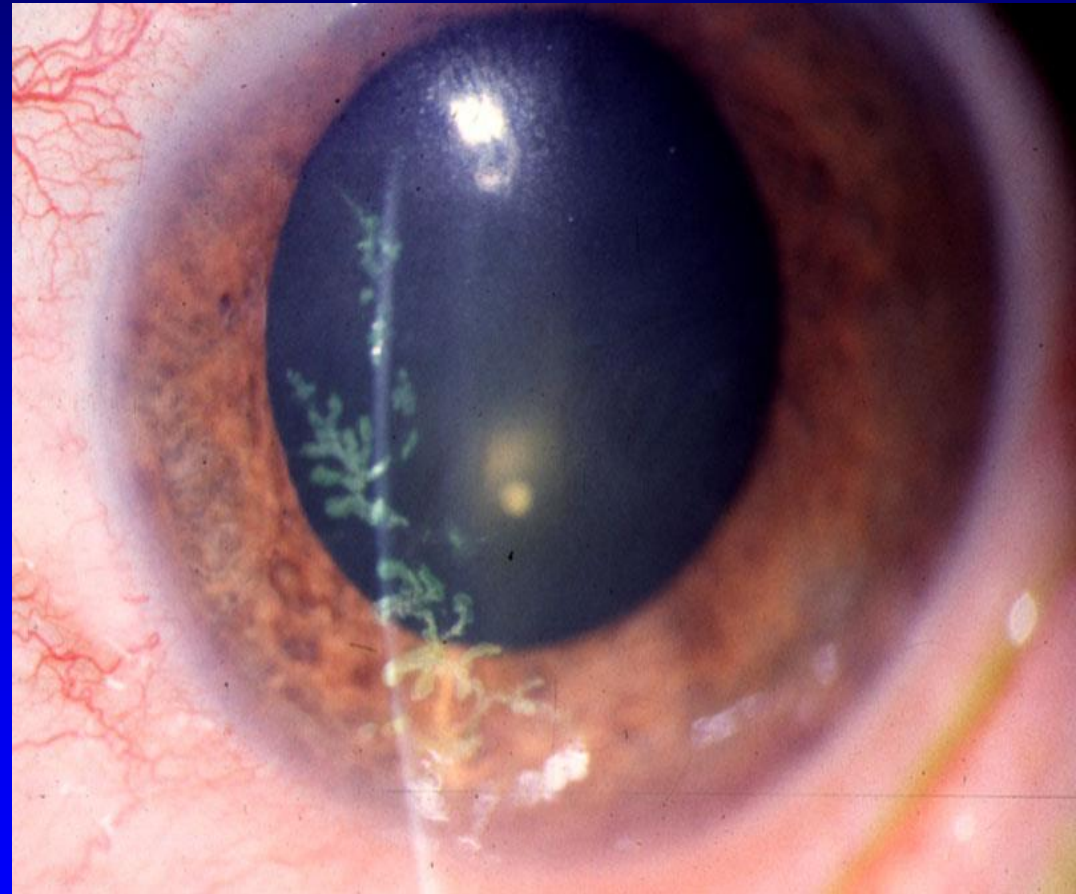
- ◆ Transient
- ◆ 55% lead to pseudodendrites
- ◆ Steroids not effective
- ◆ Varicella cultured from lesions



Corneal Complications

Early Pseudodendrite

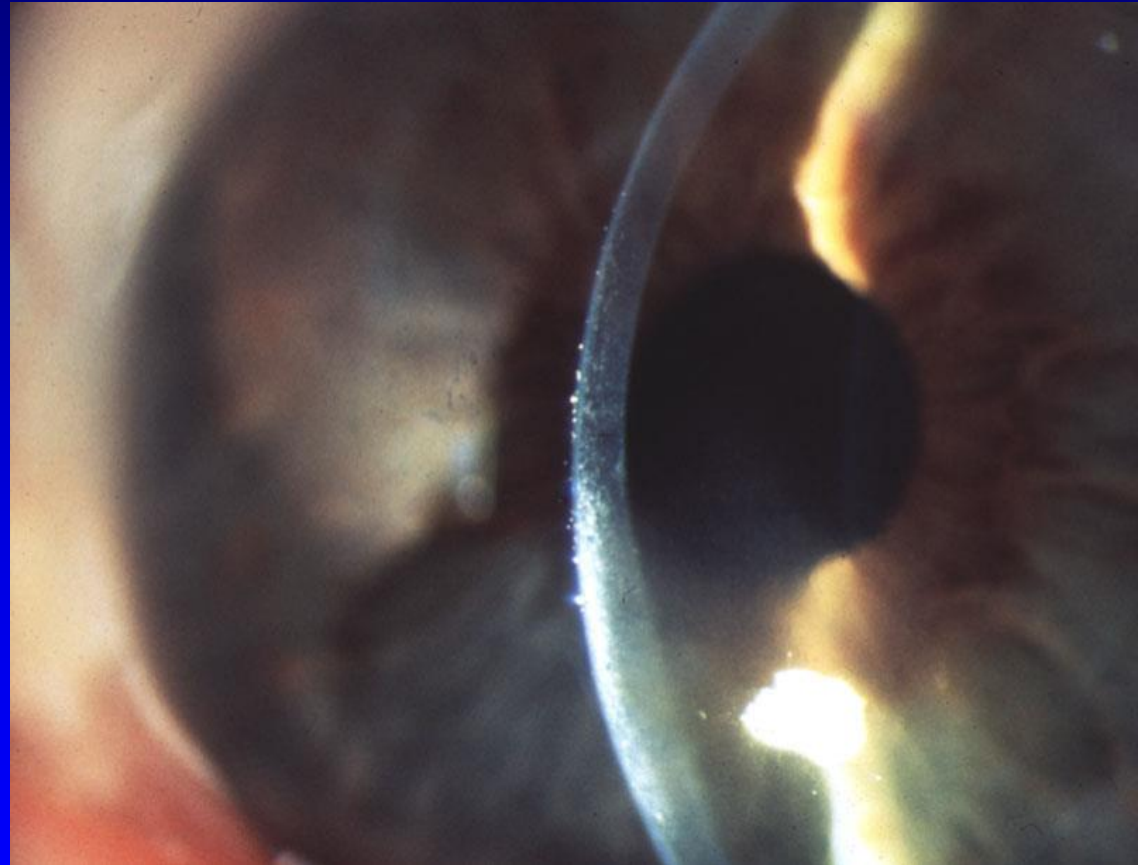
- ◆ Lack terminal endbulbs of simplex
- ◆ Stellate and raised
- ◆ Coalescence of previous punctate lesions
- ◆ Rose bengal & fluorescein



Corneal Complications

Anterior Stromal Infiltrate

- ◆ Granular hazy infiltrates
- ◆ Usually underneath punctate keratitis or pseudodendrite
- ◆ May leave scar
- ◆ Respond to steroids



Corneal Complications

Sclerokeratitis

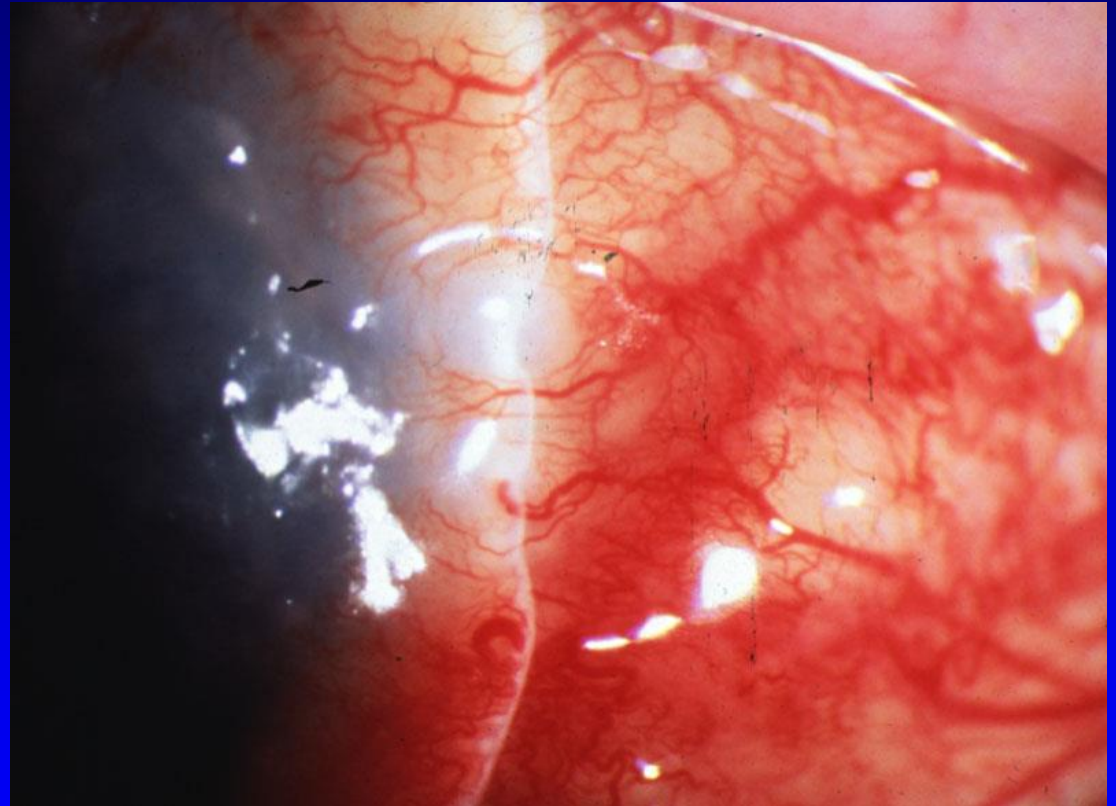
- ◆ Usually with uveitis
- ◆ Iris sector atrophy
- ◆ Mechanism: vasculitis of episcleral or scleral vessels and ischemia



Corneal Complications

Sclerokeratitis

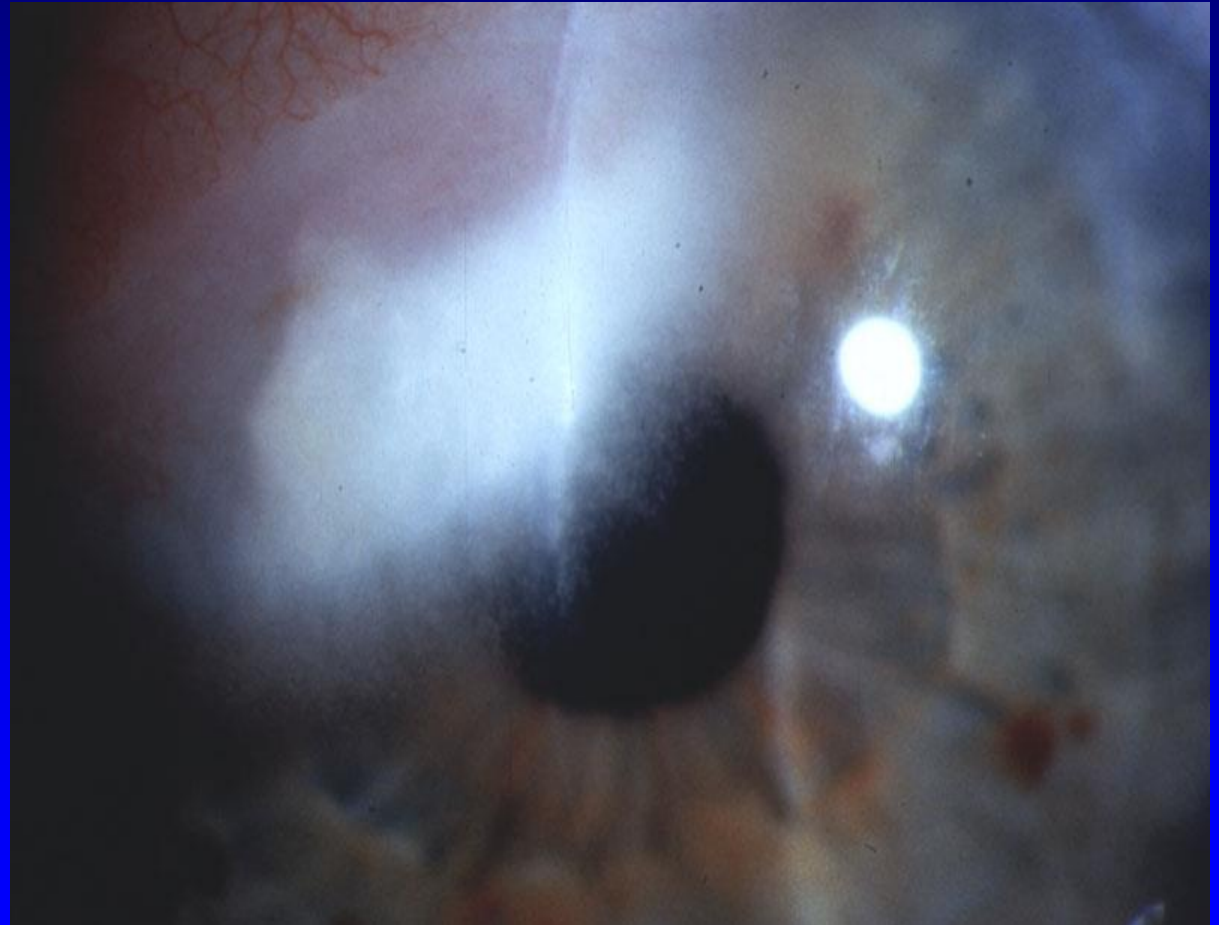
- ◆ Peripheral stromal infiltrate
- ◆ Adjacent episcleral or scleral nodule
- ◆ Occurs 10 days to 3 months after onset of zoster



Corneal Complications

Sclerokeratitis

- ◆ Scleralization
- ◆ Vascularization
- ◆ Lipid deposition
- ◆ Scarring
- ◆ Thinning



Corneal Complications

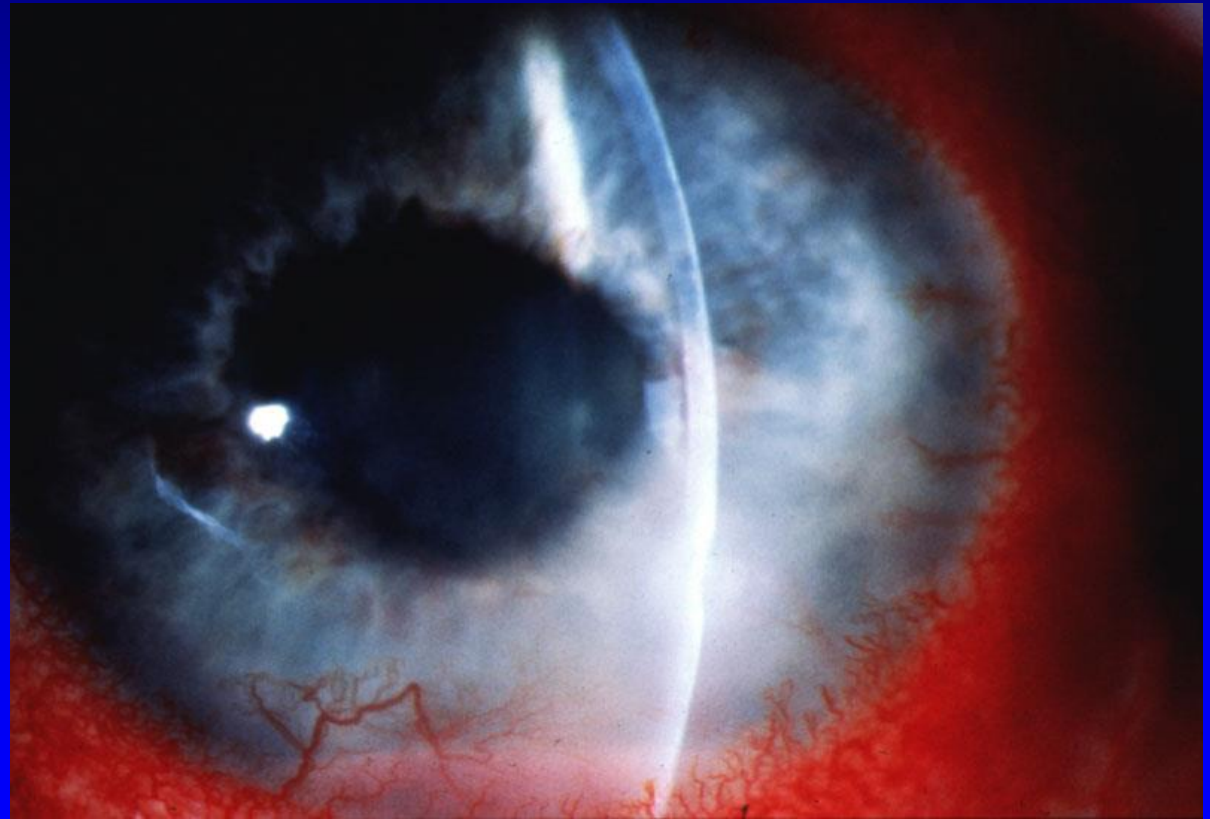
Keratouveitis

- ◆ Presents from 1 to 21 days after zoster
- ◆ Diffuse or localized stromal and epithelial edema
- ◆ Occasionally associated with KP

Corneal Complications

Keratouveitis

- ◆ One third have elevated IOP
- ◆ Hypopyon and hemorrhage in severe vasculitis
- ◆ Possible phthisis



Corneal Complications

Endotheliitis

- ◆ Endothelial cell loss
- ◆ Corneal decompensation
- ◆ Evidence for viral attack against endothelium
- ◆ Granulomatous reaction at Descemet's

Corneal Complications

Delayed Corneal Mucous Plaques

- ◆ May form pseudodendritic pattern
- ◆ Stain better with rose bengal than fluorescein
- ◆ Foreign body sensation
- ◆ Elevated opaque gray epithelial lesions

Corneal Complications

Disciform Keratitis

- ◆ Occurs at 1 to 9 months after zoster
- ◆ Disc shaped stromal edema
- ◆ Central or peripheral
- ◆ Intact epithelium
- ◆ Immune ring may be present

Corneal Complications

Neurotrophic Keratitis

- ◆ 40% of HZO patients have decreased corneal sensation from 3 to 21 days
- ◆ Sensation returns in less than half
- ◆ 25% of all patients develop neurotrophic keratitis

Corneal Complications

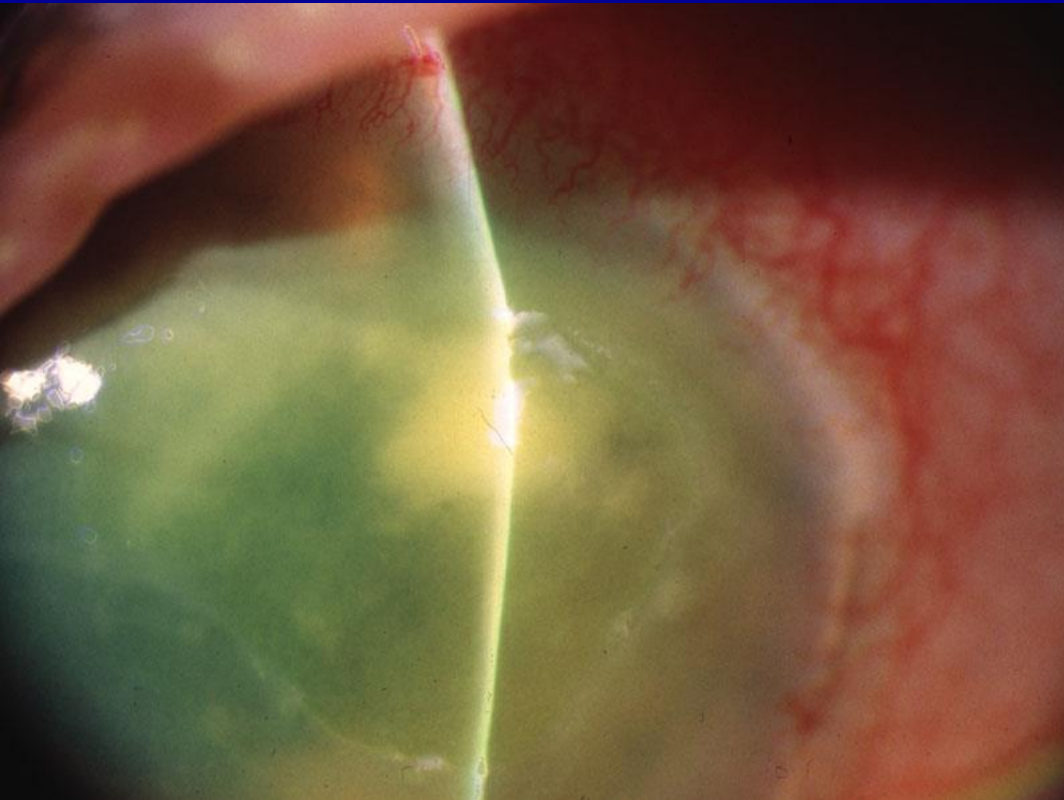
Neurotrophic Keratitis

- ◆ Oval epithelial defect
- ◆ Ulceration of lower third
- ◆ Exposure pattern 40% pts
- ◆ Risk of superinfection
- ◆ Thinning, scarring, perforation

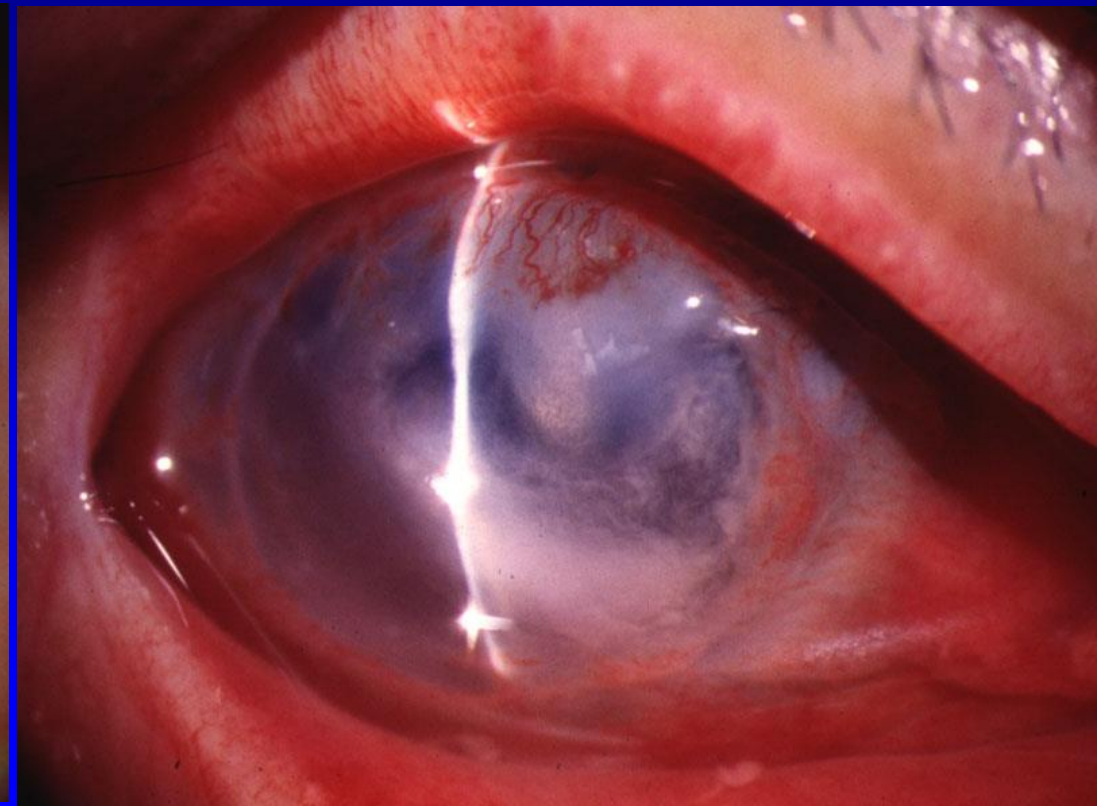


Corneal Complications

◆ Infection



◆ Perforation



Medical Management

Medical Management

- ◆ Acyclovir 800 mg by mouth 5 times daily for 10 days or valacyclovir 1 g tid
- ◆ Best if started within 72 hours of onset
- ◆ Consider intravenous acyclovir if severely immunocompromised or debilitated (Adults 30mg/kg/day in 3 doses)

Medical Management

- ◆ Non-preserved artificial tears
- ◆ Lubricant ointment at bedtime or more
- ◆ Mucolytic agents
- ◆ Bandage contact lens

Shingles Prevention Study

- ◆ Incidence decreased by 50% with Zostavax
- ◆ Incidence of post-herpetic neuralgia decreased by two thirds with vaccine
- ◆ Duration of protective effect not clear
- ◆ Need for booster vaccine not known

Summary

- ◆ Zoster Ophthalmicus is not rare
- ◆ Be ready to make the diagnosis
- ◆ Early is better
- ◆ Antivirals effective if started < 72 hours
- ◆ Close monitoring for complications

Thank you

CURRICULUM VITAE

KAREN WOLFE OXFORD

EDUCATION AND TRAINING

B.A., Bryn Mawr College, 1986
Molecular Biology at Haverford College
Minor in Spanish at Bryn Mawr
Bryn Mawr, Pennsylvania

M.D., University of Southern California
School of Medicine, Los Angeles, 1990

Intern in Internal Medicine, 1991
St. Mary Medical Center
Long Beach, California

Resident in Ophthalmology, 1994
University of Florida, Gainesville

Fellow in Cornea and External Diseases, 1995
Pacific Ophthalmic Consultants
California Pacific Medical Center
San Francisco, California
Preceptors: Richard L. Abbott, MD
Robert G. Webster, Jr., MD

CURRENT POSITION

Consultant, Corneal and External Diseases
Pacific Eye Associates
Clinical Professor of Ophthalmology
California Pacific Medical Center
San Francisco, California

Director, Corneal and Refractive Surgery
Pacific Eye Associates

Compliance Officer
Pacific Eye Associates
San Francisco, California

CLINICAL SKILLS

Penetrating Keratoplasty
Lamellar Keratoplasty
Phacoemulsification
Refractive Laser Surgery
Conjunctival Surgery

RESEARCH FELLOWSHIPS

Student Research Fellowship
Division of Molecular Biology
Beckman Research Institute of the
City of Hope, Duarte, California, 1986

Student Research Fellowship Award
American Heart Association
USC School of Medicine
Department of Ophthalmology, 1988

HONORS AND AWARDS

International Minerals and Chemical Scholarship
IMC Corporation
Bryn Mawr College, 1982-1986

Bachelor of Arts, Magna Cum Laude
Bryn Mawr College, 1986

High Honors in Molecular Biology
Haverford College, 1986

Cardio-Respiratory Scholarship
USC School of Medicine, 1987

Hendricks Scholarship
USC School of Medicine, 1988

Harriet Judd Sartain Medical Scholarship
Bryn Mawr College, 1988-1990

E.R. Squibb Award for Excellence in Medical
Student Research, USC School of Medicine, 1989

Honors Grades in Clinical Clerkships:
Ophthalmology, Neuro-Ophthalmology,
Internal Medicine, Pediatrics, Otolaryngology,
Neuroradiology, Pulmonary Medicine,
Rheumatology, and Emergency Medicine
USC School of Medicine, 1988-1990

USC Merit Award, USC School of Medicine, 1989

Luce Scholar, Henry Luce Foundation, New York, 1990

Jerome W. Bettman Risk Management Essay
Competition, 1995

Guide to America's Top Ophthalmologists, 2004
Consumers' Research Council of America
Washington DC

TEACHING EXPERIENCE

Lectures in Cellular Biochemistry Receptors:
The Insulin Receptor
Bryn Mawr College Department of Biology, 1985

Teaching Assistant, Medical Spanish Instructor
USC School of Medicine, 1986

Lectures in Ophthalmology
University of Florida School of Medicine, 1992

Chief Resident in Ophthalmology
University of Florida, 1993

Coordinator, Resident Cornea Clinic
California Pacific Medical Center
San Francisco, California 1994-1995

Lectures in Cornea and External Diseases
California Pacific Medical Center
San Francisco, California 1994-present

COMMITTEE APPOINTMENTS

Committee on Recredentialing
American Academy of Ophthalmology, 1995-00

Advisory Board, UCSF Refractive Surgery Center
University of California, San Francisco, 1996-00

Ophthalmology Leadership Council
California Pacific Medical Center
San Francisco, 1996-99

LANGUAGE SKILLS

Spanish (fluent written and spoken)

BOARD CERTIFICATION

Diplomate, National Board of Medical Examiners 1991
Diplomate, American Board of Ophthalmology 1997
Diplomate, American Board of Ophthalmology 2007

LICENSURE

California Physician License # G 078840

SOCIETY MEMBERSHIPS

American Academy of Ophthalmology, 1992-Present

International Society of Refractive Surgery, 2004

The Cornea Society, 2004 - present

Christian Medical & Dental Society, 1985

American Medical Association, 1987-1990

Association for Research in Vision and Ophthalmology
1988-1994

Florida Society of Ophthalmology, 1992-1995

Christian Ophthalmology Society, 1993

Contact Lens Association of Ophthalmologists
1993-99

Ocular Microbiology and Immunology Group, 1995

San Francisco Medical Society, 1995

Max Fine Cornea Society, 1996-present

PROFESSIONAL SERVICES

Reviewer for *American Journal of Ophthalmology*

Reviewer for *Cornea*

RESEARCH EXPERIENCE

Research Assistant, Haverford College
Protein Chemistry, 1985-1986

Research Assistant, Molecular Biology Division
Beckman Research Institute of the City of Hope
Duarte, California, 1986

Research Assistant, Estelle Doheny Eye
Foundation and USC School of Medicine
Department of Ophthalmology, 1988-1990

Corneal wound healing research
University of Florida
Department of Ophthalmology, 1992-1994

Principle Investigator, Inspire Pharmaceuticals
FDA Dry Eye Study INS365
Pacific Eye Associates
San Francisco, California, 2001

MAJOR RESEARCH AND CLINICAL INTERESTS

1. Complications of laser refractive surgery
2. The effect of growth factors on corneal wound healing
3. Infectious keratitis

PUBLICATIONS

ARTICLES PUBLISHED

1. Wolfe KA. Vitamin A Deficiency and Third World Blindness. *USC Journal of Medicine* 1990;4:7
2. Wolfe KA and Sadun AA. Threshold Amsler Grid Testing in Diabetic Retinopathy. *Graefe's Archive Ophthalmology* 1991;229:219-223
3. Schultz GS, Khaw PT, Oxford KW, Macauley S, Van Setten G, Chegini N. Growth Factors and Ocular Wound Healing. *Eye* 1994;8:184-187
4. Oxford KW, Abbott RL, Fung WE, Ellis DS. Aspergillus Endophthalmitis After Sutureless Cataract Surgery. *Am J Ophthalmol* 1995;120:534-535
5. Oxford KW. Untruth and Consequences (Complications of RK Surgery). *Argus* October 1995
6. Oxford KW. Untruth and Consequences (Complications of RK Surgery). *Ophthalmic Risk Management and Claims Desk Reference*, Ophthalmic Mutual Insurance Corporation, San Francisco, 1996
7. Penrose PJ, Tzekov R, Sutter EE, Fu AD, Allen AW, Fung WE, Oxford KW. Multifocal Electroretinography Evaluation for Early Detection of Retinal Dysfunction in Patients Taking Hydroxychloroquine. *Retina* 2003;23:503-12.
8. Fung A, Oxford KW. Microwave-Superheated Vics Vapo Rub: An Ocular Public Health Danger. *Am J Ophthalmol* 2004;137:379-380
9. Callanan D, Scott IU, Murray TG, Oxford KW, Bowman CB, Flynn HW Jr. Early Onset Endophthalmitis Caused by Aspergillus Species Following Cataract Surgery. *Am J*

Ophthalmol. 2006 Sep;142(3):509-11.

PRESENTATIONS AT NATIONAL AND INTERNATIONAL SCIENTIFIC MEETINGS

1. Wolfe KA and Sadun AA. Threshold Amsler Grid Testing in Diabetic Retinopathy. Association for Research in Vision and Ophthalmology, Sarasota, Florida. 1989
2. Wolfe KA and Sadun AA. Threshold Amsler Grid Testing in Diabetic Retinopathy. LAC-USC Medical Grand Rounds, Los Angeles, California. 1989
3. Wolfe KA, Sadun AA, Kitridou RC. The Detection of Hydroxychloroquine Maculopathy with Threshold Amsler Grid Testing. Association for Research in Vision and Ophthalmology, Sarasota, Florida. 1990
4. DuBois LG, Wolfe KA, Sadun AA, Sebag J. Retinal Function in Non-proliferative Diabetic Retinopathy. Association for Research in Vision and Ophthalmology, Sarasota, Florida. 1990
5. Charles MA, Sebag J, Wolfe KA, Sadun AA, Abe J. Color Vision and Ocular Blood Flow in Non-proliferative Diabetic Retinopathy. Association for Research in Vision and Ophthalmology, Sarasota, Florida. 1990
6. Wolfe KA, Sebag J, Sadun AA, DuBois LG, Brown S, Tang M, Charles MA. Effects of Pentoxifylline on Ocular Blood Flow in Non-proliferative Diabetic Retinopathy. Association for Research in Vision and Ophthalmology, Sarasota, Florida. 1991
7. Oxford KW, Balch KC, Schultz GS, van Setten GB, Stern GA. Effects of TGF- β on the Re-epithelialization and Tensile Strength of Corneal Wounds. Association for Research in Vision and Ophthalmology, Sarasota, Florida. 1993
8. Webster RG, Oxford KW. Discussion of "The outcome of combined penetrating keratoplasty and trabeculectomy." American Academy of Ophthalmology, San Francisco, California, November 1994.

ABSTRACTS PUBLISHED

1. Wolfe KA and Sadun AA. Threshold Amsler Grid Testing in Diabetic Retinopathy. *Invest Ophthalmol Vis Sci* 1989;30(suppl):435

2. Wolfe KA and Sadun AA. Threshold Amsler Grid Testing in Diabetic Retinopathy. *USC Journal of Medicine* 1989;3:16-17
3. Wolfe KA, Sadun AA, Kitridou RC. The Detection of Hydroxychloroquine Maculopathy with Threshold Amsler Grid Testing. *Invest Ophthalmol Vis Sci* 1990;31(suppl):136
4. DuBois LG, Wolfe KA, Sadun AA, Sebag J. Retinal Function in Non-proliferative Diabetic Retinopathy. *Invest Ophthalmol Vis Sci* 1990;31(suppl):126
5. Charles MA, Sebag J, Wolfe KA, Sadun AA, Abe J. Color Vision and Ocular Blood Flow in Non-proliferative Diabetic Retinopathy. *Invest Ophthalmol Vis Sci* 1990;31(suppl):130
6. Sebag J, Sadun AA, Wolfe KA, Abe J. Physiologic and Functional Profiles of Early Diabetic Retinopathy. *Diabetes* 1990;39(suppl):192A
7. Wolfe KA, Sebag J, Sadun AA, DuBois LG, Brown S, Tang M, Charles MA. Effects of Pentoxifylline on Ocular Blood Flow in Non-proliferative Diabetic Retinopathy. *Invest Ophthalmol Vis Sci* 1991;32(suppl):863
8. Oxford KW, Balch KC, Schultz GS, van Setten GB, Stern GA. Effects of TGF- β on the Re-epithelialization and Tensile Strength of Corneal Wounds. *Invest Ophthalmol Vis Sci* 1993;34(suppl):1375

ARTICLES IN PREPARATION

1. Oxford KW, Abbott RL, Webster RG. Operating Microscope Thermal Keratopathy.
2. Oxford KW, Spencer W, Abbott R, Webster RG. Histology of *Acanthamoeba* keratitis after treatment with PHMB.
3. Oxford KW, et al. Pterygium Surgery. *Focal Points* 2008

CHAPTERS

1. Oxford KW, Abbott RL: "Infections after Penetrating Keratoplasty" (chapter), Krachmer J, Mannis MJ, and Holland E (Eds), Cornea. St. Louis: CV Mosby Co., 1996.
2. Jeng BH, Oxford KW, Abbott RL: "Infections after Penetrating Keratoplasty" (chapter), Krachmer J, Mannis MJ, and Holland E (Eds), Cornea. St. Louis: CV Mosby Co., 2005

INVITED LECTURES

1. Fungal Endophthalmitis After Sutureless Cataract Surgery.
Twelfth Annual Barkan Association, Berkeley, California, April 8, 1995.
2. Management of Common Eye Problems.
Department of Obstetrics and Gynecology, California Pacific Medical Center,
San Francisco, California, June 20, 1995.
3. *Acanthamoeba* Keratitis.
Complications of Radial Keratotomy.
The Use of Tissue Adhesives in Corneal Perforations.
International Symposium of Ophthalmology, São Paulo, Brazil, May 31 to June 1, 1996
4. Corneal Complications of Herpes Zoster Ophthalmicus
Stanford Basic Science Course, Stanford University, California, August 14, 1996
5. Common External Eye Problems
Department of Internal Medicine, California Pacific Medical Center,
San Francisco, California, February 19, 1997
6. Corneal Preservation
Basic Principles of Refractive Surgery
Corneal Complications of Herpes Zoster Ophthalmicus
Stanford Basic Science Course, Stanford University, California, August 13, 1997
7. Basic Principles of Laser Refractive Surgery
Department of Ophthalmology, California Pacific Medical Center,
January 26, 1998
8. Ocular Allergy - The State of the Art
Allergy Association of Northern California
San Francisco, California, May 12, 1998
9. Corneal Preservation

- Corneal Complications of Herpes Zoster Ophthalmicus
Stanford Basic Science Course, Stanford University, California, August 13, 1998
10. Ophthalmology for the Internist
Department of Medicine Grand Rounds, California Pacific Medical Center
San Francisco, California, September 29, 1998

 11. Management of Common Eye Problems
Medical Staff Rounds, Saint Francis Medical Center
San Francisco, California, February 16, 1999

 12. Refractive Surgery: Photorefractive Keratectomy and LASIK
Department of Medicine Grand Rounds, California Pacific Medical Center
San Francisco, California, April 13, 1999

 13. Corneal Preservation
Basic Principles of Refractive Surgery
Corneal Complications of Herpes Zoster Ophthalmicus
Stanford Basic Science Course, Stanford University, California, August 10, 1999

 14. Ophthalmology for the Internist
Santa Rosa Memorial Hospital Grand Rounds
Santa Rosa, California, February 4, 2000

 15. Complications of Laser Refractive Surgery
San Francisco Optometric Association
San Francisco, California, June 27, 2000

 16. Corneal Preservation
Basic Principles of Refractive Surgery
Corneal Complications of Herpes Zoster Ophthalmicus
Stanford Basic Science Course, Stanford University, California, August 9, 2000

 17. Cornea Coding Made Clear
Practice Management Audioconference
American Academy of Ophthalmology, September 7, 2000

 18. LASIK Complications
Indications for Amniotic Membrane grafting in Ocular Surface Disease
Seventeenth Annual Barkan Society Meeting

San Francisco, California, May 5, 2001

19. Corneal Preservation
Amniotic Membrane in Ocular Surface Reconstruction
Basic Principles of Refractive Surgery
Corneal Complications of Herpes Zoster Ophthalmicus
Stanford Basic Science Course, Stanford University, California, August 1, 2001

20. Infectious Keratitis
San Francisco Cornea Symposium
Pacific Vision Institute
San Francisco, California, March 13, 2002

21. Ophthalmology for the Internist
Department of Medicine Grand Rounds, California Pacific Medical Center
San Francisco, California, March 20, 2002

22. Corneal Preservation
Amniotic Membrane in Ocular Surface Reconstruction
Basic Principles of Refractive Surgery
Corneal Complications of Herpes Zoster Ophthalmicus
Stanford Basic Science Course, Stanford University, California, July 31, 2002

23. Anterior Segment Photography: A Physician's Perspective
Ophthalmic Photographer's Society
San Francisco, California, August 3, 2002

24. The New Fluoroquinolones: Advantages and Indications
Eighteenth Annual Barkan Society Meeting
San Francisco, California, May 3, 2003

25. The New Fluoroquinolones: Advantages and Indications
Blue Shield of California
San Francisco, California, July 18, 2003

26. Corneal Preservation
Amniotic Membrane in Ocular Surface Reconstruction
Basic Principles of Refractive Surgery
Corneal Complications of Herpes Zoster Ophthalmicus
Stanford Basic Science Course, Stanford University, California, July 29, 2003

27. Surgical Management of Pterygium
The New Fluoroquinolones: Advantages and Indications
Bay Area Women in Ophthalmology Meeting
Menlo Park, California, September 18, 2003
28. Ocular Infections and the New Fluoroquinolones
UC Berkeley Practicum
Berkeley, California, January 10, 2004
29. Ocular Infections and the New Fluoroquinolones
San Francisco Optometric Society
San Francisco, California, January 27, 2004
30. New Therapies for Dry Eye
Sjögren's Syndrome Symposium
California Pacific Medical Center
San Francisco, California, April 3, 2004
31. Preventing Post-Operative Infections
Women In Ophthalmology
Berkeley, California, April 26, 2004
32. Preventing Post-Operative Infections
Seattle, Washington, November 11, 2004
33. Diagnosis and Treatment of Ocular Allergies
San Francisco Optometric Society
San Francisco, California, February 22, 2005
34. Ocular Infections and the New Fluoroquinolones
Optometric Educational Symposia
Sacramento, California, February 23, 2005
35. Diagnosis and Treatment of Ocular Allergies
San Mateo Optometric Society
San Mateo, California, March 22, 2005
36. Diagnosis and Treatment of Ocular Allergies
Allergy Update
Las Vegas, Nevada, March 24, 2005

37. Diagnosis and Treatment of Ocular Allergies
Pierce County Ophthalmology Society
Tacoma, Washington, April 26, 2005
38. Real Facts on Ocular Allergy
Allergy Update
San Francisco, California, May 19, 2005
39. Ocular Aspects of Bioterrorism
Nineteenth Barkan Symposium
San Francisco, California, June 18, 2005
40. Use of NSAID Therapy to Maximize Surgical Outcomes
Pacific Eye Associates Annual Meeting
San Francisco, California, September 20, 2005
41. Use of NSAID Therapy to Maximize Surgical Outcomes
Lafayette, California, September 27, 2005
42. Use of NSAID Therapy to Maximize Surgical Outcomes
Department of Health Services
State of California
Sacramento, California, October 6, 2005
43. Use of NSAID Therapy to Maximize Surgical Outcomes
San Diego, California, October 27, 2005
44. The Pediatric Red Eye
Town & Country Pediatrics
San Francisco, California, November 15, 2005
45. Use of NSAID Therapy to Maximize Surgical Outcomes
Anaheim, California, December 1, 2005
46. Ocular Aspects of Bioterrorism
Basics By the Bay
San Francisco, California, December 3, 2005
47. Use of NSAID Therapy to Maximize Surgical Outcomes
Alta Society Meeting
Sacramento, California, January 26, 2006

48. Use of NSAID Therapy to Maximize Surgical Outcomes
Phoenix, Arizona, February 23, 2006
49. Use of NSAID Therapy to Maximize Surgical Outcomes
Kaiser Permanente Medical Group Webcast
San Francisco, California, February 24, 2006
50. The Pediatric Red Eye
Berkeley, California, March 28, 2006
51. Use of NSAID Therapy to Maximize Surgical Outcomes
Portland, Oregon, March 30, 2006
52. Diagnosis and Treatment of Ocular Allergies
Fresno, California, April 6, 2006
53. Use of NSAID Therapy to Maximize Surgical Outcomes
Blue Shield of California
San Francisco, California, April 25, 2006
54. Diagnosis and Treatment of Ocular Allergies and Dry Eye
San Jose, California, April 25, 2006
55. Diagnosis and Treatment of Ocular Allergies and Dry Eye
Walnut Creek, California, June 13, 2006
56. Ocular Aspects of Bioterrorism
Department of Ophthalmology
University of California, Irvine, June 22, 2006
57. Therapeutic Update to Maximize Surgical Outcomes
Monterey, California, August 8, 2006
58. Therapeutic Update to Maximize Surgical Outcomes
Santa Cruz, California, October 12, 2006
59. Overview of Ocular Surface Disorders
Sacramento, California, October 19, 2006
60. Overview of Ocular Surface Disorders
Helping Improve Therapeutic Success
Tucson, Arizona, October 28, 2006

61. Overview of Ocular Surface Disorders
San Francisco, California, November 1, 2006
62. Overview of Ocular Surface Disorders
Oakland, California, November 6, 2006
63. Overview of Ocular Surface Disorders
Palo Alto, California, December 5, 2006
64. Overview of Ocular Surface Disorders
Fresno, California, December 7, 2006
65. Pediatric Red Eye
Berkeley, California, January 18, 2007
66. Overview of Ocular Surface Disorders
San Francisco, California, February 12, 2007
67. Overview of Ocular Surface Disorders
Healdsburg, California, March 7, 2007
68. Ocular Allergy Update
Palo Alto, California, March 13, 2007
69. Ocular Allergy Update
San Francisco, California, March 14, 2007
70. Ocular Allergy Update
Walnut Creek, California, March 28, 2007
71. Ocular Allergy Update
Santa Rosa, California, April 4, 2007
72. Ocular Allergy Update
Santa Clara County Optometric Society
San Jose, California, May 17, 2007
73. Ocular Allergy Update
Pacific Laser Eye Center
Santa Rosa, California, June 26, 2007
74. Medications Update: Allergy and Dry Eye

Pacific Vision Institute
Burlingame, California, October 17, 2007

75. Diagnosis and Treatment of Red Eye
California Pharmacists Association Forum
Sacramento, California, February 6, 2008
76. Ocular Allergy Update
Cupertino, California, March 13, 2008
77. Ocular Allergy Update
Portland, Oregon, April 29, 2008
78. Ocular Allergy Update
Fresno, California, May 13, 2008

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