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: Benign vs. Neoplastic Anterior Segment Diseases

Provider Name: UCSF c/o Dr. Jane Kuo

☑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

CALIFORNIA STATE BOARD OF OPTOMETRY

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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.

Course Title	**Course Presentation Date**
Benign vs. Neoplastic Anterior Seg Diseases	02/05/2017

Course Provider Contact Information

Provider Name

Truyet (First) Tran (Last) Thi (Middle)

Provider Mailing Address

Street 8 Koret Wy **City** San Francisco **State** CA **Zip** 94143

Dr. Jane Kuo is the provider
Jane.Kuo@ucsf.edu

Provider Email Address truyet.tran@ucsf.edu

Will the proposed course be open to all California licensed optometrists?	☑ 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?	☑ 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

Truyet (First) Tran (Last) Thi (Middle)

License Number 15413 TLG	**License Type** Optometrist
Phone Number (209) 918-1424	**Email Address** truyet.tran@ucsf.edu

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.

Truyet Tran — 01/05/2017

Signature of Course Provider ***Date***

Title: Differentiating Ocular Surface Squamous Neoplasia from Benign Anterior Segment Conditions

Presenter: Truyet Tran, OD

Summary:
As primary eye care providers, optometrists commonly see patients with benign anterior segment findings such as pingueculae and pterygia. Due to the seriousness of ocular surface squamous neoplasia and its clinical similarities to benign anterior segment conditions, it is important for optometrists to be able to properly differentiate these conditions. Upon completion of the program, participants should be able to diagnose and manage ocular surface squamous neoplasia and differentiate the malignant from the benign.

Differentiating Ocular Surface Squamous Neoplasia from Benign Anterior Segment Conditions

As primary eye care providers, optometrists commonly see patients with benign anterior segment findings such as pingueculae and pterygia. Due to the seriousness of ocular surface squamous neoplasia and its clinical similarities to benign anterior segment conditions, it is important for optometrists to be able to properly differentiate these conditions. Upon completion of the program, participants should be able to diagnose and manage ocular surface squamous neoplasia and differentiate the malignant from the benign.

1) OSSN characteristics
2) Epidemiology
3) Risk factors
    a) UV exposure
    b) Light complexion
    c) Older age
    d) Smoking
    e) Immunosuppression
    f) Infection
        i) Trachoma
        ii) HPV
        iii) HIV
    g) Genetics
4) Symptoms
5) Clinical presentation
6) Histology
7) Classification of OSSN
8) Differential diagnoses
    a) Pannus
    b) Pterygium
    c) Pingueculum
    d) Melanoma
    e) Conjunctival nevus
    f) Dykeratosis
    g) Pyogenic granuloma
    h) Conjunctival lymphoma
9) Treatment
    a) Excisional biopsy with cryotherapy
    b) Topical chemo: mitomycin c and 5-fluorouracil, or interferon alpha 2B
        i) Side effects
    c) radiotherapy, enucleation and even exenteration
10) Prognosis

Differentiating Between Ocular Surface Squamous Neoplasia and Benign Anterior Segment Conditions

Truyet Tran, OD

OSSN

- Dysplastic lesions involving the squamous epithelium of the conjunctiva or cornea
- Epithelial infiltration can range from mild to severe dysplasia to full-thickness epithelial dysplasia (CIS) to invasive SCC, when tumo cells invade through the epithelial basement membrane

Epidemiology

Rare: 0.13-1.9 per 100,000

Highest incidence in men age 50-75 yrs

Ris Factors

- UV exposure
  - Higher prevalence of OSSN near equator
- Hig propensity to sunburn
- Past history of ski cancer
- Light skin pigmentation
- Light irides
- Older age: OSSN in person unde age 2 yrs should raise suspicion for immunodeficiency
- Smoking

Ris Factors

- Immunosuppression
- Chronic trachoma o HPV infection (subtypes 16 an 18
- HI infection
  - Risk of OSSN increases 13-fold
- Vitamin deficiency
- Chronic irritants
  - Chemical
  - Chronic epitheliopathies

Geneti Risk Factors

- UV-associated mutations in tumor suppressor genes such as *p53*
- Hereditary deficiency of DNA repair
  - e.g., xeroderma pigmentosum

Symptoms

- Rarely affects vision prior to presentation
- Chronic irritation
- Red eye
- Tearing
- May be asymptomatic

Clinical Presentation

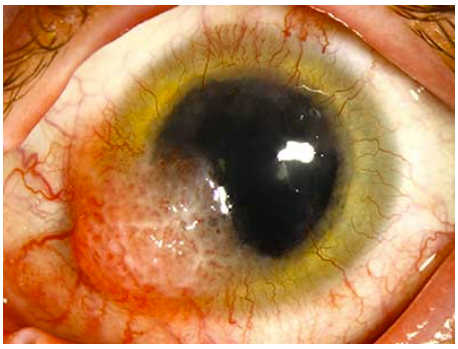
- Typically arises adjacent to the limbus, over a pinguecula
  - Over 95% of OSSN originates in the limbus, often interpalpebral (3:00 or 9:00 bulbar conj)
- Can involve either the conjunctiva or cornea, but most commonly affects both

Clinical Appearance

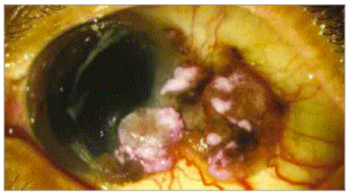
- Color: pearly gray to reddish brown
- Surface: papilliform or gelatinous
- A white plaque (leukoplakia) may develop on the surface of the lesion
  - indicates secondary hyperkeratosis secondary to squamous cell dysfunction
  - concerning for invasive disease

Clinical Appearance

- Epithelial thickening
- Gelatinous or leukoplakic surface due to surface keratinization
  - Surface keratinization is not pathognomonic for OSSN; it may be seen over any elevated lesion not covered by the tear film. But it is very common in OSSN.
- Prominent "corkscrew" vessels
- Adjacent conj may appear injected with prominent feeder vessels
- Masses are initially mobile and later become fixed to the sclera
- Rose Bengal staining can help identify the extent of the lesion.



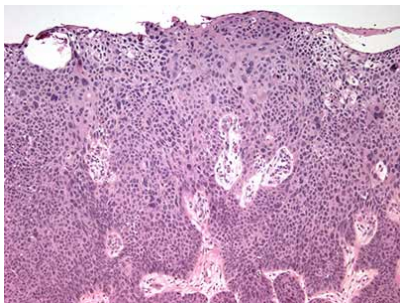
Surface Keratinization



Histology

- Epithelial hyperplasia, loss of goblet cells, loss of normal cell polarity, nuclear hyperchromasia and pleomorphism, and mitotic features
- Surfrace kertanization
- Dyskeratosis (non-surface cells producing keratin)
- Chronic inflammation in the substantia propria

Histology



Classification

- Neoplasia is graded as mild, moderate, or severe according to the degree of cellular irregularity
- Grading doesn't have bearing on prognosis
- Severe: full-thickness involvement of epithelium, with squamous eddies or keratin whorls/pearls
- More advanced lesions: squamous carcinoma in situ

Histology

- Distinguish if neoplasia is contained by basement membrane (ie, intraepithelial or in situ) or if neoplastic cells have invaded the stroma
- *Conjunctival intraepithelial neoplasia (CIN)* Neoplasia contained by basement membrane
  - Term CIN is a histologic term for non-invasive lesions; not used much clinically since it i impossible to determine stromal invasion o clinical exam (OSSN)

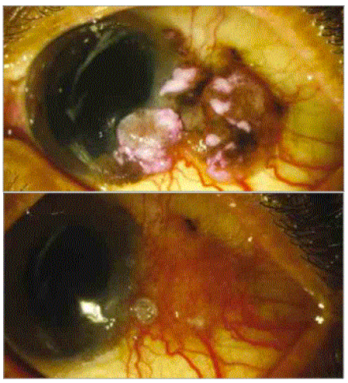
- *Invasive squamous cell carcinoma:* neoplastic cells have invaded the stroma
  - Invasion through sclera or cornea and intraocular spread are uncommon
  - Intraocular spread often occurs at site of previous surgery (eg, cataract)
  - Regional lymph node metastasis not as common as with squamous carcinomas of the skin

Treatment

- Excisional biopsy with 2-4mm margins and cryotherapy to excision edges
  - The status of the lateral and deep margins is important for prognosis.
  - Avoid incisional biopsy due to malignant seeding potential
- During the procedure, mitomycin C (0.2 mg/mL or 0.4 mg/mL) can be applied topically for 1-2 minutes
- Absolute alcohol can be used to remove the involved corneal epithelium
  - Copious irrigation following mitomycin C or absolute alcohol
- After removal of larger tumors, conjunctival autografts or amniotic membrane grafts can be used to help close the conjunctival defect

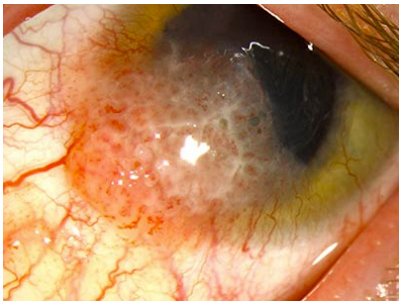
Adjuvant Treatment

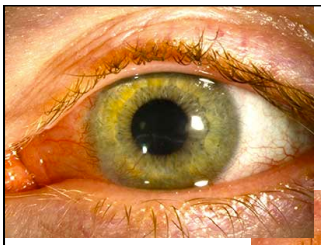
- Chemotherapy: topical eyedrops o mitomycin C (MMC), 5-fluorouracil (5FU), or interferon (IFN) alpha 2B
  - Mitomycin C drops are typically prescribed four times per day for 1-3 weeks, followed by 1-3 weeks drop holiday. Repeat 2 to 4 times depending on response
  - Side effects include dry eye, superficial punctate epitheliopathy, punctal stenosis, and rarely stem cell deficiency
    - Punctal plugs prior to starting these regimens prevent punctal stenosis



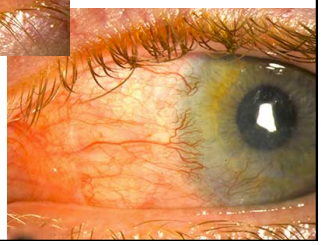
Before Treatment

After 8 weeks topical mitomycin C

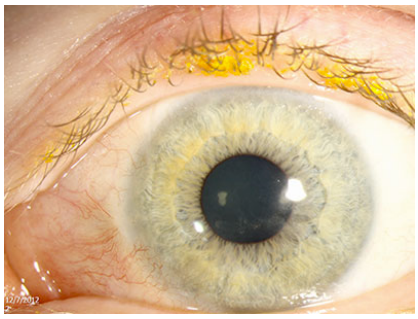




4 month post-op



10 month post-op



Treatment

- Rare: radiotherapy, enucleation and even exenteration
  - reserved for severe cases where the extent of the lesion precludes excision
- There are two types of radiation therapy employed: external beam radiotherapy and custom-designed plaque radiotherapy

Prognosis

- Generally carry favorable prognosis
- Invasive SC can invade th scleral wall and infiltrate othe tissue o th globe or spread into the orbit
  - Intraocular spread is typically treated with enucleation and orbital involvement with exenteration.
- Overall recurrence rate of OSSN: 12.9%.
- Tumor recurrence is largely predicted by th size (>5m i diameter), stage, an histologic diagnosis o th tumor at the time of presentation

Ddx

- Through close careful exam with slit-lamp biomicroscopy, OSSN lesions can frequently be distinguished from other conjunctival lesions, such as pterygia and conjunctival lymphom

Differential Diagnosis

- Cornea pannus
- Pterygium
- Pingueculum
- Melanoma
- Conjunctival nevus
- Dyskeratosis
- Pyogenic granuloma
- Keratoacanthoma
- Conjunctival lymphom (salmon patch)

References

- Boese, E, Rogers, G, and Kitzmann, A. "A Very Unusual Case o Ocular Surface Squamous Neoplasia." *University of Iowa and Health Care Ophthalmology and Visual Sciences.* http:// webeye.ophth.uiowa.edu/eyeforum/cases/163-OSSN.htm. 4 Nov 2016.
- "Ocular Surface Squamous Neoplasia." *American Academy o Ophthalmology.* https://www.aao.org/bcscsnippetdetail.aspx?id=ea3703b1-3d1c-4d98 9401-60751d23f992. 4 Nov 2016.
- Sudesh S , Rapuano CJ, Cohen EJ, Eagle RC Jr, Laibson PR. Surgical management of ocular surface squamous neoplasms: the experience from a cornea center. *Cornea.* 2000; 19(3):278–283
- Vazirani, J and Mohapatra, S. *Ocular Surface Squamous Neoplasia.* JAMA Ophthalmology. 2016; online only.

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truyet.tran@ucsf.edu

EDUCATION

University of California, Berkeley School of Optometry May 2014
Doctor of Optometry *Berkeley, CA*
Honors in Research, Beta Sigma Kappa

University of California, Berkeley May 2008
Bachelor of Arts in Integrative Biology *Berkeley, CA*

CLINICAL EXPERIENCE

VA Portland Health Care System Jul 2014 - Jun 2015
Primary Care Optometry Resident *Portland, OR*

- Provided vision care to a high volume of geriatric patients with an emphasis on ocular disease management and low vision evaluations.
- Performed minor lids procedures including intralesional injections and excision.
- Presented quarterly seminar lectures, and an end-of-the-year optometry conference lecture.

Pacific University College of Optometry Jul 2014 - Jun 2015
Adjunct Clinical Instructor *Portland, OR*

- Supervised student interns in over 200 patient encounters.

UCSF Medical Center Mar 2016 – present
Staff Optometrist *San Francisco, CA*

- Provide primary care eye exams including diabetic screenings, contact lens fittings, and annual comprehensive exams.
- Work closely with ophthalmologists, fellows and residents in Cornea subspecialty clinic

CLINICAL EXTERNSHIPS

California State University, Sacramento Mar - May 2014

Society for the Blind, Sacramento Mar - May 2014

San Francisco Veterans Affairs Medical Center Oct - Dec 2013

Sierra Nevada Veterans Affairs Medical Center Aug - Oct 2013

RESEARCH

Graduate Research Assistant Sept 2011 - June 2014
Dennis Levi Lab - University of California, Berkeley *Berkeley, CA*

- Recruited and screened subjects, maintained lab equipment, and monitored perceptual learning experiments.
- Assisted in data analysis and manuscript preparation.

Honors in Research May 2014
UC Berkeley School of Optometry *Berkeley, CA*
Honors thesis: Enhancing Stereoacuity Through Perceptual Learning: Specificity for Spatial Frequency and Orientation

SCIENTIFIC PAPER PRESENTATIONS

American Academy of Optometry, Phoenix, AZ 2012
Enhancing Stereoacuity Through Perceptual Learning: Specificity for Spatial Frequency and Orientation

SCIENTIFIC POSTER PRESENTATIONS

American Academy of Optometry, Denver, CO 2014
Axenfeld-Rieger Syndrome: A Case Report and Review

Association for Research in Vision and Ophthalmology, Orlando, FL 2014
Interocular Acuity Differences Alter the Size Tuning Function of Stereopsis

Association for Research in Vision and Ophthalmology, Seattle, WA 2013
Enhancing Stereoacuity Through Perceptual Learning: Specificity for Spatial Frequency and Orientation

American Academy of Optometry, Seattle, WA 2013
Interocular Acuity Differences Alter the Size Tuning Function of Stereopsis

SCIENTIFIC POSTERS: CONTRIBUTING AUTHOR

Association for Research in Vision and Ophthalmology, Orlando, FL 2014
Enhancing Coarse-to-Fine Stereo Vision by Perceptual Learning: An Asymmetric Transfer Across Spatial Frequency Spectrum

American Academy of Optometry, Seattle, WA 2013
Enhancing Coarse-to-Fine Stereo Vision by Perceptual Learning: An Asymmetric Transfer Across Spatial Frequency Spectrum

American Academy of Optometry, Seattle, WA 2013
Videogame Play Enhances Temporal Visual Attention in Adult Amblyopia: The Attentional Blink in Amblyopia

Association for Research in Vision and Ophthalmology, Seattle, WA 2013
Interocular Acuity Difference Modifies Spatial Frequency Tuning in Stereopsis

Association for Research in Vision and Ophthalmology, Seattle, WA 2013
Videogame Experience Enhances Temporal Visual Attention in Adult Amblyopia: The Attentional Blink in Amblyopia

American Academy of Optometry, Phoenix, AZ 2012
Interocular Acuity Difference Modifies Spatial Frequency Tuning in Stereopsis

TEACHING EXPERIENCE

Course Reader: Anterior Segment 2013
University of California, Berkeley School of Optometry *Berkeley, CA*
- Graded finals for the anterior segment course

Head Graduate Student Instructor: Human Anatomy Lab Jun - Aug 2011
University of California, Berkeley *Berkeley, CA*
- Taught bi-weekly, 4-hour human anatomy labs to undergraduate students, each beginning with 1-hour lectures.
- Headed weekly instructor meetings to review course material, discuss course policies and teaching strategies, and determine logistics for exam preparation and grading.
- Conducted comprehensive exam reviews for over 100 students.

Graduate Student Instructor: Human Anatomy Lab Aug 2010 - Aug 2012
University of California, Berkeley *Berkeley, CA*
- Taught weekly, 4-hour human anatomy labs, each beginning with 1-hour lectures.
- Conducted exam reviews and held weekly office hours.
- Wrote and graded weekly quizzes and lab practical exams.

Undergraduate Student Instructor: Anatomy and Physiology Aug 2007 - May 2008
University of California, Berkeley *Berkeley, CA*
- Provided instructional support for graduate student instructors and answered fellow undergraduate students' questions on human physiology and human anatomy.

Personal Tutor Jan 2009 - Aug 2010
Club Z! In-Home Tutoring *Modesto, CA*

- Tutored students ranging from 1st to 12th grade in a variety of subjects including English, Spanish, math, biology, and chemistry.
- Reviewed student progress and study plans with parents each week.

Y-Scholars Mentor Sept 2006 - Jun 2008
Young Men's Christian Association (YMCA) *Berkeley, CA*

- Mentored a high school student, provided advice and academic support.
- Tutored first-generation, college-bound high school students.

HONORS and AWARDS

UC Berkeley Optometry Low Vision Clinic Award 2014
In recognition for low vision patient care given with passion, dedication, empathy and great skill.

The Dean Dennis Levi and Marilyn Levi Optometry Award 2014
Awarded to a student who demonstrates potential to be an outstanding future optometric educator and researcher.

The Dr. Raymond L. Eng Family Award 2013
Awarded to a student who demonstrates a high level of leadership with a commitment to community health care, public education or eye and vision research.

UC Berkeley School of Optometry Departmental Award 2010 - 2013
Awarded to students in good academic standing.

American Academy of Optometry Student Travel Fellowship 2012
Awarded to students for accomplishment and potential in optometric research and education.

American Academy of Optometry Student Fellow 2012
Awarded for attending lectures, workshops, scientific talks, and poster presentations during the American Academy of Optometry meeting.

UC Berkeley Graduate Opportunity Program Fellow 2010 - 2011
Awarded to UC Berkeley optometry students who demonstrate a potential to contribute to optometry through their understanding of barriers facing minorities.