

Preoperative Ocular Surface Disease Management: Maximizing Surgical Outcomes and Visual Results

1 hour

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Description

This course reviews the impact of dry eye disease, meibomian gland dysfunction, blepharitis, Demodex infestation, epithelial basement membrane dystrophy, and neurotrophic keratitis on surgical planning and outcomes. Participants will learn evidence-based diagnostic protocols, interpretation of advanced testing, and practical treatment strategies to stabilize the tear film before surgery. Emphasis is placed on integrating TFOS DEWS III recommendations into a comprehensive preoperative workflow that improves refractive accuracy, enhances patient satisfaction, and supports long-term surgical success.

Objectives

- Identify common ocular surface disorders that may compromise cataract and refractive surgery results, and learn to utilize advanced diagnostic testing to evaluate tear film stability, meibomian gland health, inflammation, and corneal integrity.
- Recognize the impact of dry eye disease and meibomian gland dysfunction on keratometry, topography, biometry, and IOL calculations, and develop evidence-based treatment protocols to optimize the ocular surface prior to surgery.
- Define the steps needed to implement a comprehensive preoperative OSD management pathway designed to improve refractive accuracy and patient satisfaction.

Outline

I. Why the Ocular Surface Matters Before Surgery

A. Rising Patient Expectations

- Premium IOLs
- Multifocal and EDOF technologies
- Refractive cataract surgery

- LASIK, PRK, and SMILE expectations

B. The Cost of an Unstable Tear Film

- Inaccurate keratometry
- Variable topography
- Unreliable biometry
- Postoperative dissatisfaction

C. Ocular Surface Disease as a Refractive Disease

- Impact on visual quality
- Higher-order aberrations
- Tear film instability and optical performance

II. The Prevalence of Ocular Surface Disease in Surgical Patients

A. Epidemiology

- Dry eye prevalence in cataract candidates
- Meibomian gland dysfunction prevalence
- Asymptomatic disease burden

B. Common Ocular Surface Conditions Encountered Preoperatively

- Dry eye disease
- Meibomian gland dysfunction
- Blepharitis
- Demodex blepharitis
- Ocular rosacea
- Conjunctivochalasis

- Epithelial basement membrane dystrophy
- Neurotrophic keratopathy

C. Impact on Surgical Outcomes

III. The Comprehensive Ocular Surface Evaluation

A. Patient History

- Symptoms versus signs
- Medication review
- Autoimmune disease
- Contact lens history
- Previous ocular surgery

B. Clinical Examination

- Lid margin evaluation
- Blink assessment
- Tear meniscus height
- Corneal and conjunctival staining

C. Advanced Diagnostic Testing

- Tear osmolarity
- Matrix metalloproteinase-9 (InflammaDry)
- Non-invasive tear breakup time
- Meibography
- Lipid layer analysis
- Corneal sensitivity testing

D. Imaging Technologies

- Corneal topography
- Tomography
- Placido-based systems
- Ocular surface imaging platforms

IV. Understanding the Impact of OSD on Surgical Measurements

A. Keratometry Variability

- Tear film irregularity
- Astigmatism measurement errors

B. Topography and Tomography Artifacts

- False irregular astigmatism
- Pseudo-ectasia findings

C. Biometry and IOL Calculations

- Refractive surprises
- Premium IOL candidacy

D. Corneal Staining and Visual Quality

E. Clinical Case Examples

V. Disease-Specific Management Prior to Surgery

A. Dry Eye Disease

- Artificial tears
- Prescription anti-inflammatory therapies
- Neurostimulation therapies

- Tear conservation

B. Meibomian Gland Dysfunction

- Lid hygiene
- Thermal therapies
- Meibomian gland expression
- Intense pulsed light
- Radiofrequency treatment

C. Demodex Blepharitis

- Recognition of collarettes
- Lotilaner therapy
- Long-term maintenance

D. Ocular Rosacea

- Anti-inflammatory management
- Oral doxycycline
- IPL treatment

E. Conjunctivochalasis

- Recognition and management options

F. Epithelial Basement Membrane Dystrophy

- Diagnostic clues
- Timing of surgical intervention
- Surface rehabilitation strategies

G. Neurotrophic Disease

- Corneal sensitivity assessment

- Surface healing optimization
- Cenergermin and biologic therapies

VI. Building a Surgical Optimization Protocol

A. Timing of Treatment

- When to delay surgery
- Expected treatment timelines

B. The 30-, 45-, and 90-Day Optimization Models

- Stabilizing measurements
- Repeat testing protocols
- Surgical clearance criteria

C. Defining Surgical Readiness

- Resolution of central corneal staining
- Stable keratometry
- Improved tear film metrics
- Consistent diagnostic measurements

D. Team-Based Care

- Technicians
- Optometrists
- Ophthalmologists
- Patient coordinators

VII. Patient Communication and Managing Expectations

A. Educating Patients About OSD

- Why treatment precedes surgery
- Relationship between tear film and vision

B. Improving Treatment Compliance

- Setting realistic expectations
- Explaining treatment timelines
- Maintenance therapy discussions

C. Premium Lens Counseling

- Ocular surface requirements
- Avoiding postoperative dissatisfaction

VIII. Postoperative Ocular Surface Management

A. Cataract Surgery-Induced Dry Eye

- Corneal nerve disruption
- Preservative toxicity
- Inflammation

B. Continuing Ocular Surface Therapy

- Preventing regression
- Long-term maintenance plans

C. Monitoring Surgical Outcomes

IX. Case-Based Clinical Pearls

Case 1:

- Multifocal IOL candidate with severe MGD

Case 2:

- Irregular astigmatism caused by epithelial basement membrane dystrophy

Case 3:

- Demodex blepharitis affecting surgical measurements

Case 4:

- Neurotrophic cornea prior to cataract surgery

X. Summary and Questions

Key Take-Home Messages

- Ocular surface optimization is essential for surgical success.
- Many refractive surprises originate from untreated OSD.
- Objective testing improves diagnostic accuracy.
- Stable tear film metrics improve surgical planning.
- Patient education and compliance directly influence outcomes.
- Ocular surface management should begin weeks before surgery and continue after surgery.