The Great Mimickers in Corneal and Contact Lens Related Disease

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I. The Dry Eye Dilemma: Contact Lens Induced Dry Eye, Lid Wiper Epitheliopathy, Meibomian Gland Dysfunction and Dry Eye Masquerades

II. Corneal and Conjunctival Fascinations: Papillary Conjunctivitis, Dendritiform Lesions, Superior Limbic Keratoconjunctivitis and Stem Cell Dysfunction

III. Corneal Infiltrates: Sterile Responses vs. Microbial Keratitis

The Dry Eye Dilemma

- Contact Lens Induced Changes Dry Eye and Allergy
- Meibomian Gland Changes and Lid Wiper Epitheliopathy
- Dry Eye Masquerades

CL Dry Eye

Self-Reported Dry Eye Disease across Refractive Modalities

- 52% percent of CL wearers
- 24% of spectacle wearers
- 7% of clinical emmetropes

After adjusting for age and gender...

- 1.2X (7.5-20.3) more likely than emmetropes
- 5X (3.8-9.4) more likely than spectacle wearers

Diurnal intensity

- CL -25% in symptom intensity over a typical day
- 15% CL wearers report “very intense” symptoms at the end of day

Disclosures—Joseph P. Shovlin

Allergan Pharmaceutical Advisory Panel
Abbott/AMO Global Medical Advisory Panel
- A cornea Stealth Panel (ad hoc)
Bausch + Lomb Scientific Advisory Panel
- Global Steering Committee
- Panel on Functional Keratitis (ad hoc)
Cipla Vision Post-Market Surveillance Study Group
- Johns Hopkins Aetna Committee (ad hoc)
Johnson & Johnson Global Professional Advisory Panel
- Spokes’ Forum, Visions, Ciba Vision, CooperVision, Bausch + Lomb, A NO, A L, Visions, and others
Clinical Investigator (FDA): A Abbott, A NO, Ciba Vision, Visions, A lergan, CooperVision

References, Diagnosis and Management of Dry Eye Disease:
Practical Guidelines for Canadian Optometrists

- Vistakon, Ciba Vision, CooperVision, Bausch + Lomb, AMO, Alcon, Genzyme, and Inspire

Current vs. Discontinued Wearers...

- Out of 730 surveyed...
- 453 (62%) had some lifetime experience with contact lenses
- 200 (27%) were current CL wearers
- 344 (76%) still wearing contact lenses

Reasons for discontinuation...

- Ocular surface symptoms (preference for different modality)>
- Problem with current modality (eg, other than vision)>
- Visual
- Discomfort, dryness, itchiness, grittiness, soreness, photophobia, pain

CL Dry Eye

Frequency of and Factors Associated With Contact Lens Dissatisfaction and Discontinuation

Out of 730 surveyed...

- 403 (62%) had some lifetime experience with contact lenses
- 344 (53%) still wearing contact lenses
- 109 (24%) had permanently discontinued from CL wear

Current vs. Discontinued Wearers...

- Makes, refills, 1 years of SCL wear and 1 age when first fit

Reasons for discontinuation...

- Ocular surface symptoms (preference for different modality)>
- Problem with current modality (eg, other than vision)>
- Visual
- Discomfort, dryness, itchiness, grittiness, soreness, photophobia, pain
CL Dry Eye: Factors

- 415 enrolled, 360 used in data analysis
- 55.3% classified as having dry eye
- CL-DE vs. CL-NDE...
  - Female gender
  - High water content lenses (not dehydration)
  - Reduction in PLTF lipid layer thickness
  - Rapid pre-lens tear film thinning (evaporation)
  - Increasing tear osmolality

Risk for CLDE and Discontinuation

- High water content lenses
- Increased tear thinning rates
- Increased tear osmolality
- Gender
- Lens re-fitting
- Age at first wear
- End of day symptoms

From: K. Nichols (2008)

Alternative Treatments

- Experimental treatments aimed at local inflammatory processes
- Topical corticosteroids and cyclosporine
- Effective anti-inflammatory and immune-modulating agents
- Lifitegrast (integrin antagonist)
- Antibiotics
- Reduce inflammatory processes associated with microbial colonization
- Androgens (DHEA and testosterone) and autologous serum/ebb platelet rich plasma
- Omega 3 and liposome spray
- MG probing (Maden), LipiFlow or similar device
- Intense Pulse Light Therapy (IPL)
- Acupuncture
- Prokera and amniotic membrane extract

The Role of Androgens

- Regulate lacrimal and meibomian gland function (androgen receptors)
- Maintain the anti-inflammatory state of the functional ocular unit
- Androgen deficiency in pregnancy (boys); should investigate for evidence of hormonally-responsive tumors (estrogen/testosterone)
- DHEA drops (Leiters: .5% and 1%) may help.

LID WIPER DEFINED

That aspect of the marginal conjunctiva of the upper eyelid that wipes the ocular surfaces during blinking

Korb, Herman et al., CLAO, 2002

LID WIPER & WINDSHIELD WIPER OF AUTOMOBILE

Windshield Wiper
Windshield Wiper Clearance Space
Kessing’s Space

Mary Anderson, 1903
**DX AND GRADING – LWE**

Fluorescein and Rose Bengal

**MILD LWE**
GRADE 1

- 4 mm long
- 50% of width

**SEVERE LWE**
GRADE 2 TO 3

- 12 mm long
- > 75% of width

**SAME LID**
before and after staining

*Prior to Staining*

No evidence of epitheliopathy

Minimal evidence of Inflammation

*Grade 3 LWE with Fluorescein*

100% of width

Over 10mm in length

Severe staining

*Grade 3 LWE with Fluorescein*

100% of width

Over 10mm in length

Severe staining

Vertical linear fluorescein staining is evidence of inflammation

**GRADE 2.5 LWE**

OVER 10 MM LENGTH

75% of WIDTH

**FLUORESCEIN SEQUENTIAL STAINING**

Drop 1 – 1 minute

Drop 2 – 5 minutes

LWE = Grade 0

Only Line of Marx stains

LWE = Grade 1.5

**ROLE OF SEQUENTIAL STAINING ?**

**LISSAMINE GREEN SEQUENTIAL STAINING**

**LWE CAUSATIVE FACTORS**

1. **Inflammation** – the primary cause or a sequela?

2. **Lubrication** – boundary vs. hydrodynamic compromised tear film

3. **Mechanical** – ocular surface or contact lens surface abnormalities leading to trauma & LWE

4. Protective coatings – the epithelia of the LW

5. Disorders of blinking – blepharospasm

*From: D. Korb (2011)*

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6/29/15
**TREATMENT – LWE**

1. Lubrication – day & night
2. Meibomian gland treatment
3. Steroids
4. Restasis
5. Punctal plugs
6. Other Medications for dry eye
7. NSAIDS
8. Goggles

**Meibomian Gland Dysfunction**
- Hypersecretion (seborrhea)
- Obstructive MGD (hyposecretion/frequently non-obvious)
- Inflammatory MGD (pouting and plugging)
- Infective MGD (glands and/or lids)

*From: International Workshop on Meibomian Gland Dysfunction (2012)*

**Low Delivery States**
- Most commonly found
- Hyposaline (meibomian sicca) and Obstructive (cicatricial and non-cicatricial)
- Secondary causes include medications, trachoma, atopy, erythema multiforme, ocular pemphigoid, psoriasis, seborrheic dermatitis and acne rosacea
**High Delivery States**

- Hyposecretory-meibomian seborrhea
- Secondary forms also include acne rosacea and seborrheic dermatitis
- Cascade: alteration in tear film, eye irritation, clinically apparent inflammation, ocular surface disease (dry eye).

**Dry Eye Masquerades**

- Recurrent Corneal Erosion
- Filamentary Keratitis
- Blepharitis/Meibomian Gland Dysfunction
- Mucous Fishing Syndrome
- Floppy Eyelid Syndrome/Giant Fornix Syndrome
- Conjunctivochalasis
- Salzmann Nodular Degeneration
Conjunctivochalasis

Fluorescein Pattern in CCh

OCT: Conjunctivochalasis

Molluscum Contagiosum
Case 7 -- corneal haze
Demodex Keratitis
DIAGNOSTIC CONFUSION WITH DENDRIFORM LESIONS OF THE CORNEA

- Acanthamoeba elevated corneal line
- Herpes simplex dendrite
- Herpes zoster keratopathy
- Contact lens “pseudo-dendrite”
- Thygeson’s superficial keratopathy
- Tryosinemia (Richner-Hanhart)
- Other corneal fascinations: edematous formations, verticillata, filaments, stromal dystrophy, post PK hypertrophic epitheliopathy, Fabry verticillata
Thygeson's Keratitis

This is a unique, coarse, punctate, unilateral or bilateral, clear and infiltrative. The lesions are gray-white to white and centrally with corneal haze do not stain. Also, they have been treated with Keratitis.
Table 1. Summary of 18 CLSC analyzed for bacterial bio-burden and susceptibility to MPDS based on PQ-1 + Aldox + nonanoyl-EDTA prior to experiencing CIEs. Bacteria were identified and tested for sensitivity to MPDS-1 and three other MPSDs. 16/18 CLSC (89%) contained bacterial counts of ≥10^4/mL.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Bacterial Species</th>
<th>Sensitivity to MPDS-1</th>
<th>Sensitivity to Other MPSDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stenotrophomonas maltophilia</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Delftia acidovorans</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Elizabethkingia monacha</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>Acanthamoeba spp.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Corneal infiltrative events (CIEs) are being reported with increasing frequency in lens wearers and may be related to specific multipurpose disinfecting solution (MPDS), contact lens type or bacterial bio-burden.

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Correlation of bacterial contamination of lenses and production of CIE

Willcox, Eye & Contact Lens, 2013

Characterizing Corneal Infiltrates from a 2010 Case Control Study of SCL Wearers

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This study was designed by Robin L Chalmers and funded by Alcon Research, Ltd

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Estimating the Annual Economic Burden of Illness Caused by Contact Lens-Associated Corneal Infiltrative Events in the United States

Wu et al., IOVS 2010

<table>
<thead>
<tr>
<th>Factor</th>
<th>P-value</th>
<th>Odds ratio</th>
<th>95% CI</th>
<th>Population attributable risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens case hygiene</td>
<td>0.003</td>
<td>1.00</td>
<td>6.42</td>
<td>1.89-21.80</td>
</tr>
<tr>
<td>Frequency of replacement ≤3 months</td>
<td>0.009</td>
<td>1.00</td>
<td>5.39</td>
<td>1.53-18.91</td>
</tr>
</tbody>
</table>

Hygiene defined as air-drying lens cases; Stapleton et al., 2008

Effect of lens case design on ease of removal of bacteria (in vitro)

Wu et al., IOVS 2010

Bacterial adhesion to lens cases

Wu et al., IOVS 2010
Effect of rub & rinse

Connecting diagrams showing the effect of rub & rinse on Staphylococcus Aureus, Pseudomonas Aeruginosa, Serratia Marcescens, and Fusarium Solani.

Number of microbes in lens cases

Graphs showing the number of microbes in lens cases for Staphylococcus Aureus, Pseudomonas Aeruginosa, Serratia Marcescens, and Fusarium Solani.

Contamination with Gram-positive bacteria

Bar charts showing the rate of contamination with Gram-positive bacteria for different contact lens solutions.

Contamination with Gram-negative bacteria

Bar charts showing the rate of contamination with Gram-negative bacteria for different contact lens solutions.

Associated Publication:

The Incidence of Microbial Keratitis among Wearers of a 30-Day Silicone Hydrogel Extended-Wear Contact Lens

December 2005 Publication

Ophthalmology

Journal of the American Academy of Ophthalmology
Microbial Event or Sterile Response?
“The Law of Parsimony”

- **High Probability Microbial Keratitis**: “A corneal stromal infiltrate 2mm or greater in size and one OR more of the following: anterior chamber reaction more than minimal; pain; discharge; positive corneal culture.”


- **High Probability Sterile Keratitis**: “A corneal stromal infiltrate 1mm or less in size, AND outside central 6mm, AND minimal or no anterior chamber reaction, AND no discharge, AND minimal or no pain.”


Clinical Features of Ulcerative Keratitis

- **Symptomatology**: pain, photophobia, decreased acuity, foreign body sensation

- **Signs**: significant lid edema and reactive ptosis, conjunctival and ciliary injection, discharge, papillary response, stromal infiltration, surrounding edema, epithelial defect, anterior chamber reaction, cellular debris of tear meniscus and hypopyon
CDC Case Control Study Results

- **Adjusted odds ratio:**
  - ReNu with MoistureLoc™ -19 (2.4-944.9) p<0.001
  - ReNu®MultiPlus™ -3.6 (0.3-189) p=0.5

**Conclusion:** ReNu®MultiPlus™ was not significantly associated with the recent outbreak of Fusarium keratitis. Cause of strong association with ReNu with MoistureLoc™ is unclear.

On-going studies looking at environmental and formulation under stress risks are continuing.

**Confocal Microscopy:**
Fungal Keratitis

Fungal Keratitis
Acanthamoeba Keratitis can be an Outbreak disease: History in the USA

<table>
<thead>
<tr>
<th>Time period</th>
<th>Total cases</th>
<th>Cases average/Per year</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974-1983</td>
<td>31</td>
<td>3</td>
<td>50% wore contact lenses but no correlation made; this is the beginning normal disease rate</td>
</tr>
<tr>
<td>1984-1989 Outbreak</td>
<td>1150 estimate</td>
<td>155</td>
<td>80% soft contact lens wearers; nearly all used non-sterile solutions to soak lenses due to FDA approved salt tablets</td>
</tr>
<tr>
<td>1994-2003 (June 03)</td>
<td>180 estimate</td>
<td>19</td>
<td>Excludes 157 patients who used lens care regimen? Risk 3.56 times normal disease rate</td>
</tr>
<tr>
<td>June 2004-2007 Outbreak</td>
<td>465 Data from CDC</td>
<td>121</td>
<td>Outbreak caused? EPRA; decrease of water disinfection level and a constant small number of patients using water in their lens care regimen?</td>
</tr>
</tbody>
</table>

Acanthamoeba Keratitis Case Control Studies: Relative Risk

- CDC: Complete® MoisturePlus™ - 16.9, "top off" solution 2.8, <5 years wear 2.8

Effect of domestic water supply

Correlation between contamination of Sydney domestic water supply and lenses.

AK is not associated with population density but perhaps water supply.

Epidemic Intelligence Conference CDC, April, 2012

- Multiple CL hygiene practices were associated with increased risk of AK. The observed persistence of AK might be due to enhanced disease awareness and clinical suspicion following the 2007 investigation.
- To prevent infection, CL wearers should observe recommended CL care practices.

RISK FACTORS: topping off solutions 4.54X, recently starting CL use 3.22X, storing CL in water 5.37X, and handling CL with wet hands 2.17X.
Confocal Microscopy: Acanthamoeba Keratitis
Key Points to Remember…

- Bilateral HSV and recurrent HSV should be evaluated for reduced cell-mediated immunity (atopy, occult CA, etc.).
- Theodore’s SLK (localized CCH) most likely represents some form of thyroid dysfunction (elevated TPO).
- Corneal crystals can be a signal for sinister disease such as lymphoproliferative disorders.
- Dry eye symptoms may be from CCH rather than aqueous deficiencies or lid disease.
- Persistent corneal ulceration in the presence of a neurotrophic cornea may represent substance abuse (crack keratopathy).
- Contact lens wear and solution toxicity can cause significant stem cell dysfunction and result in reduced acuity (conjunctivalization).
- Not a great difference in bugs or severity when comparing conventional and silicone hydrogel lens-related infections. Gram + (endogenous) and Gram - (environmental).

Quote of the Month….

“If this is what I think it is, then I’m dead wrong”

Rev. Jim Ignatowski
Memorable character, Taxi (1982)
Great Mimickers in Contact Lens & Corneal Disease

Clinical Case - 63 yof

Refraction:
OD  -2.25-0.75x130 / +0.25 = 20/20
OS  -3.00-0.50x180 / +2.25 = 20/40

Biomicroscopy: Grade 1 MGD, grade 1 injection, grade 2+ SPK, AC d&q, iris normal, grade 1 NS

DFE: Disc, macula, vessels, iridium, and peripheral retina normal.

Impression: Combined etiology dry eye

Plan: Hot compress qd, Systane Balance PF qid, good hydration & omega 3's, Cooper Aquaclear toric OD / no scl OS BioTrue qhs.

Questions for consideration … Just what is Tarceva?

Erlotinib is a kinase inhibitor approved for pancreatic cancer and metastatic non-small cell lung cancer

Inhibits epidermal growth factor receptor activity in cancer cells

Stevens Johnson Syndrome among side effects

Ocular side effects: Abnormal eyelash growth, reduced tear secretion, ocular surface disease, and corneal edema

Great Mimickers in Contact Lens & Corneal Disease

Clinical Case - 63 yof

Ocular History: Long standing successful monovision scl wearer. C/O dryness, blurred vision, and contact lens intolerance. I think my dryness is due to my contact lenses.

Contact Lens History: Cooper Frequency 55 torics. ReNu qhs. Replaces q 2 mths.

Systemic History: Htn, hypothyroid, non-smoker's lung CA

Medications: Amlodipine, levothyroxine, & Tarceva. NKDA.

Exam:
VA OD cc 20/20 & OS cc 20/50
Pupils Perrla / EOM f&S / CF full OU / IOP's 14 OU

2 week follow-up:

Ocular History: Compliant with all treatments. Right eye feels much better and is much clearer.

VA:  OD scl 20/25 (D)  &  OS scl 20/40 (N)

Biomicroscopy: Grade 1 MGD, trace injection OS > OD, trace SPK OD & grade 1 SPK OS, ac d&q, iris normal, grade 1 NS

Plan: Continue hot compress, omega 3's, Systane Balance FF qd, & Aquaclear toric OD. Add Aquaclear +0.25 OS = 20/20 N

Great Mimickers in Contact Lens & Corneal Disease

Clinical Case - 35 yof

Ocular History: Dx of 'forme fruste' keratoconus 3 month prior. Attempted GPCL, but unable to wear due to dryness and fb sensation. Resumed SCL wear. ReOptiBlur and Soothing VR. Eyes burn & tear after lens removal.

Contact Lens History: Acuvue Oasys OU. OptiFree Replenish qhs. No rub, no rinse. Replaces q 2-3 mths.

Systemic History: Excellent. No medications. NKDA.

Exam:
VA OD cc 20/30 & OS cc 20/70 (spectacles)
Pupils Perrla / EOM f&S / CF full OU

Great Mimickers in Contact Lens & Corneal Disease

Clinical Case - 35 yof

Ocular History: Dx of ‘Forme Fruste’ keratoconus 3 months prior. Exhausted. Failed to make it wear due to dryness and redness. Replaced SCL wear. ReOptiBlur and Soothing VR. Eyes burn & tear after lens removal.

Contact Lens History: Acuvue Oasys OU. OptiFree Replenish qhs. No rub, no rinse. Replaces q 2-3 mths.

Systemic History: Excellent. No medications. NKDA.

Exam:  VA OD cc 20/30 & OS cc 20/70 (spectacles)
Pupils Perrla / EOM f&S / CF full OU

Great Mimickers in Contact Lens & Corneal Disease

Clinical Case - 63 yof

Refraction:
OD  -4.25-0.75 x 130 = 20/20-
OS  -5.00-0.50 x 50 = 20/25

Simulated Keratometry:
OD 4378 x 4435 @ 48
OS  4370 x 4448 @ 7

Keratoconus Indices:
Negative OD
Negative OS
Clinical Case - 35 yof
Biomicroscopy:
Grade 1+ MGD OU, grade 1 conj injection OU, superior corneal haze and negative wetting OU, AC d&q OU, iris normal OU, lens clear OU

Impression: MGD with tear evaporative dry eye OU
CL related limbal stem cell deficiency OU
Plan:
D/C contact lenses
Lotemax OU qid x2 wk, bid x2 wk
Hot compress OU qd
Blink PF OU qid
1000 mg fish oil qd (EPA/DHA)
500 mg Vitamin C bid
F/U 1 mth

Clinical Case - 35 yof
1 month f/u
CC: eyes feel much better. VA stable. No burning or tearing.
VA OD cc 20/20 OS cc 20/25
Biomicroscopy:
Fading stromal haze OU
Improved ocular wetting OU
Plan:
Continue hot compress, omega 3s, and Blink PF qid
Eventual refit Alcon Dailies Total 1 85 -450 OD & -475 OS

Great Mimickers in Contact Lens & Corneal Disease

Questions for consideration ... what is Limbal Stem Cell Deficiency (LSCD) ?
LSCD caused by ...
- Congenital Diseases
- Infection
- Inflammation
- Immune disorders
- Trauma (contact lens)
- Chemical, thermal, radiation burns

Clinical Case - 44 yof
Ocular History:
Previously wore soft contact lenses, but d/c due to dryness
Referred by corneal specialist
Has tried Optive, Systane, & TheraTears
Has tried Pred Forte & Alrex
Current eye gtt: Patanol ou bid, Restasis ou bid.
CC: "I get eye hemorrhages monthly. I’d like to get back into wearing contact lenses if possible."
Systemic History: +Anxiety. (-) Thyroid. (-) Arthritis.
(-) Blood dyscrasias / hematology work-up.
Medications: Fluoxetine qd, Fish oil qd.
Great Mimickers in Contact Lens & Corneal Disease

Clinical Case - 44 yof

VA: OD Rx 20/20 & OS Rx 20/20.

Externals: (+) malar flush

Biomicroscopy:
Grade 3 mgd ou
Grade 2 conjunctival chalasis ou
Grade 1 conjunctival LG stain ou
Cornea clear with TBUT < 10 sec ou
Tear prism <0.5mm ou

Impression:
MGD ou
Keratoconjunctivitis sicca ou
Rosacea
Subconjunctival hemorrhage ou
(Menstrual related ?)

Plan:
1. Spoke with ob-gyn – r/o causes for menorrhagia
2. Spoke with pcp – doxycycline 50 mg qd
3. Hot compresses with digital massage ou bid
4. Nordic Naturals ProOmega – 2 softgels po qd
5. Lotemax ou bid
6. Patanol ou qam
7. Restasis ou bid
8. F/u 1 month

1 month f/u
Doing much better.
Plan: 1) D/C Lotemax 2) Continue all other tx 3) F/u 2 months

1 month f/u
Doing great, no hemorrhages in 2 months.'

VA: OD Rx 20/20 & OS Rx 20/20.

Biomicroscopy:
Gr 1 mgd
Gr 1 conjunctival chalasis w/o LG stain ou
Cornea clear with TBUT ~ 10 sec ou

Plan:
1. Continue hot compress ou qd
2. Continue Restasis ou bid & Patanol ou prn
3. Continue ProOmega qd
4. Doxycycline 50 mg qod x 1 mth, then d/c
5. BioTrue Daily Disposable

OD 8.6 14.2 -3.75 & OS 8.6 14.2 -3.50

Great Mimickers in Contact Lens & Corneal Disease

Clinical Case – 34 YOF

Ocular history
• Previous EWSCL OU
• Bilateral acanthamoeba keratitis

Systemic history
• Excellent. No med. No nkda

Chief complaint:
• Blurred Vision with spectacles OU. Intolerant to GPCL OU. Am I a candidate for LASIK surgery?

Ocular medications:
• Pred forte OS qid & Zovirax ung OS bid

Great Mimickers in Contact Lens & Corneal Disease

Clinical Case - 34 YOF

Visual acuity cc
• OD 20/40+
• OS 20/400

Biomicroscopy:
• Corneal leukoma and Neovascularization OS > OD
• No active herpetic lesion OS

Symmetrical corneal sensation

Pachymetry
• OD 545 u & OS 553 u
**Clinical case – 34 yof**

**Refraction**
- OD: -6.25 -0.75x45 = 20/20
- OS: -4.50 -5.50x91 = 20/50

**Topography**
- Irregular astigmatism OU

**Keratometry**
- OD: 43.62 x 45.00
- OS: 41.12 x 94.12

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**Clinical case – 24 yof**

**Contact Lenses**
- OD: Boston EO 7.60 9.3/7.8 -6.00 Central position
- Inferior position
- Central clearance optimal movement 20/20
- No apical clearance
- Inferior position
- Central clearance minimal movement 20/25

**Wear time**
- 15 hrs qd
- AOSept Clear Care qhs
- No water rinses!

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**Important acanthamoeba facts**

- Occur in 1:30,000 wearing years. 88% soft & 12% GPCL

- 40 AK cases in Chicago 2003-2005. 6.67x increased RR

- Increased risk showering, reuse solution, and not rubbing

- Confocal microscopy 91% specific and 98% sensitive in dr.

- Diagnosis before ring infiltrate for improved visual outcome

- Diamadines and biguanides best treatment combination
- Cysts of a polyphaga, a castellani, and a hatchetti

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**Case report: MR 33 yof**

- Daily wear SCL / Variable MPS qhs
- CO red, pain, tearing, blurry OD x 2 days
- Saw POG yesterday and on gentamicin OD qid
- Systemic HIV excellent, no meds. NKDA
- Social His: 1 alcohol and substance abuse
- Work His: Social coordinator at long term health care facility
Great Mimickers in Contact Lens & Corneal Disease

Case report: MR 33 yof

- Would you have done anything differently during the work-up?
  Culture retest/passage?

- What do you think was the offending microorganism?
  Neisseria Simplex

- How would you treat it differently today?
  Zirgan Ophthalmic gel 0.5% x 7d