OCULAR WELLNESS: HABITS FOR HEALTHY CONTACT LENS WEAR

AOA Contact Lens & Cornea Council
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Dr. Ed Bennett
Dr. Jeff Sonsino
Dr. Shalu Pal
Dr. Pam Lowe
Dr. Glenda Secor

DRY EYE:

Dr Shalu Pal

1. What method do you use to diagnose dry eye disease in your patients?

A. Symptom Questionnaire
B. Corneal Staining
C. Tear Break Up Time
D. Schirmer Tear Test
E. Inflammatory Dry Eye Test
F. Tear Osmolarity Test
2. What is your preferred method of dry eye treatment?

A. Artificial tears
B. Punctal plugs
C. Omega 3’s
D. Restasis
E. Autologous serum

Dry Eye

• Contact Lens Wear and Dry Eye

1. Symptoms
2. Evaluation
3. Testing

Dry Eye

• Management
  • 1. OTC Artificial Tears and Rewetting Drops
  • 2. Contact Lens Options
  • 3. Lens Care and Compliance
  • 4. Prescription Medications
  • 5. Self-help (i.e., optimize environment, water, etc.)
  • 6. Omega-3/flaxseed oil
  • 7. Punctal Plugs
  • 8. New Dry Eye Treatments (i.e., Plasma: Platelet-rich and others)
Dry Eye

After Refractive Surgery

Dry Eye

Menopause

OCULAR ALLERGIES:
Dr. Ed Bennett
CONTACT LENS WEARERS AND ALLERGIES

- May be as many as 12 million CL wearers suffering from allergies (Karpecki, 2012)
- Results in increased CL drop out rate: 42% of CL wearers with allergy symptoms d/c CL wear and went back to spectacles without informing ECP (Asthma and Allergy Foundation of America, 2006)

SYMPTOMS AND CLINICAL SIGNS

- Symptoms: tearing, burning, itching, grittiness/foreign body sensation, redness, dryness
- Clinical Signs: redness, lid inflammation/edema, watery discharge
What advice are you MOST likely to give an allergy sufferer to optimize their environment and potentially lessen the problem? (Ed)

A. Don’t rub your eyes  
B. Reduce outdoor exposure/activities  
C. Shower more often  
D. Change sheets and pillow cases more often  
E. Increase bathing of pets  
F. Reduce or eliminate turning on ceiling fans

ENVIRONMENTAL TREATMENTS

- Minimize impact of pollen, dust mites, animal dander, mold
- Avoid rubbing eyes
- Stay inside during high pollen count periods
- Regularly clean bathrooms and kitchen
- Wash bedding, pillow cases
- Wash pet 1 – 2x/week; some pets do not shed
- Wash hair every day
- Windows closed; low speed or no speed fans
What is your preferred pharmaceutical of choice with contact lens wearers suffering from ocular allergies? (Ed)

A. Mast cell stabilizer (i.e., Alamast, Crolom, Alomide, Alocril)
B. Combined mast cell stabilizer (i.e., Optivar, Elestat, Zaditor, Patanol, Alaway, Bepreve, Pataday, Lastacraft)
C. Topical Steroids (Alrex, Lotemax)
D. Do not prescribe pharmaceuticals; recommend cold compresses and changing environment

PHARMACEUTICAL TREATMENT

• Mast Cell Stabilizer: Prevent degranulation and subsequent release of mediators; few side effects but delayed onset
• Combined Mast Cell Stabilizer: Characteristics of both MCS and antihistamine (i.e., prevent histamine release); often first-line Tx
• Topical Steroids: Suppress mast cell proliferation, inhibit production of inflammatory mediators, and reduce influx of inflammatory cells; useful in severe allergy cases; unresponsive VKC or AKC

OTHER FACTORS TO CONSIDER

• Wait approx. 10 minutes after drop instillation before inserting CLs
• Once-daily formulations (i.e., Pataday from Alcon; Lastacraft from Allergan) are very convenient although many are b.i.d. and can be applied in early am and before sleep
CONTACT LENSES AND ALLERGIES

• Daily disposable (Hays, 2003 found 67% of allergy sufferers refit into DD lenses had better comfort)
• Rub and rinse
• Hydrogen peroxide
• GP lenses: plasma Tx, extra-strength cleaner/Progent (Menicon)
• Preservative-free Ats
• Daily wear schedule

MEIBOMIAN GLAND DYSFUNCTION(MGD)

Dr Tom Quinn

Question

• What is thought to be the leading cause of dry eye disease? (Tom)
  1. Decreased tear production
  2. Rapid evaporation of the tear film
  3. Sjogren's Syndrome
  4. Menopause
Meibomian Gland Dysfunction (MGD)

- “MGD is an extremely important condition, conceivably underestimated, and very likely the most frequent cause of dry eye disease.”
- Reported incidence vary widely
  - Partly due to poorly defined
  - Appears to be much higher in Asian population
    - Asian: 60.8–69.3% (China, Japan, Taiwan)
    - Caucasian: 3.5–19.9% (USA, Australia)


Detecting MGD

- Patient Symptoms
  - Ocular discomfort (dry, burning, gritty)
  - Itching (eyes or eyelid margins)
  - Photophobia
  - Blur (fluctuating)
  - None!

Detecting MGD

- External Examination
  - Generalized bulbar injection
  - Red/thickened eyelid margins
  - Normal!
Detecting MGD

- Slit-lamp examination
  - Expose and examine lid margin
  - Express glands
  - Staining
    - Conjunctiva
    - Cornea
Question

- What treatment strategies should be employed when treating MGD? (Tom)

1. Eyelid procedures: soaks/scrubs/gland expression
2. Modify environment (humidifier)
3. Increase intake of omega-3 fatty acid
4. Anti-inflammatory medications
5. All of the above

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**Table 3. Staging and Treatment of Meibomian Gland Disease**

| Staging | Description | Treatment
|---------|-------------|-----------
| Stage 1 | Mild to absent/expressibility and secretion quality, symptomatic/medical care | Treatment involves ensuring the patient understands how the condition affects daily life, educating them about the condition, using non-invasive modalities like warm compresses, and referring the patient to a specialist if necessary.
| Stage 2 | Mild to absent/expressibility and secretion quality, may need to add symptomatic, medical care | Medications may include topical antibiotics, anti-inflammatory drops, and possibly a combination of both.
| Stage 3 | Moderate/absent/expressibility and secretion quality, may need to add symptomatic, medical care | More aggressive treatment may be required, including oral medications, photothermolysis, and possibly surgical intervention.
| Stage 4 | Severe/absent/expressibility and secretion quality, marked/medical care | Interventions may include laser therapy, photothermolysis, and possibly surgical intervention.

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**CONTACT LENS-INDUCED PAPILLARY CONJUNCTIVITIS (CLPC)**

Dr. Jeff Sonsino
1. What are risk factors for developing Contact Lens-induced Papillary Conjunctivitis (CLPC)?

A. Lipid and protein deposits on contact lenses
B. Bacterial bio-burden on contact lenses
C. Change to higher modulus material
D. Knife edge profile of soft lens
E. A&C
F. B&D

2. What are effective ways to treat CLPC?

A. Topical steroids
B. Discontinue contact lenses
C. Change contact lenses to daily disposable modality
D. All of the above

CONTACT LENS-INDUCED PAPILLARY CONJUNCTIVITIS (CLPC):

Stages and Evaluation
CONTACT LENS-INDUCED PAPILLARY CONJUNCTIVITIS (CLPC)

• Management

• 1. Medications

• 2. Contact lenses

• 3. Care and Compliance

BLEPHARITIS

Dr. Pam Lowe

Question (Pam)
Which is the infectious complication of contact lens wear?
• a. Toxicity
• b. Blepharitis
• c. Meibomian gland disease
• d. Allergy
What is Blepharitis?

- **Blepharitis** is an inflammation of the eyelids causing red, irritated, eyelids and the formation of dandruff-like scales on the eyelashes.
- Symptoms include itching, burning and foreign body sensation.
- Reoccurrence is common and may lead to Trichiasis.

Two Types of Blepharitis

- **Anterior Blepharitis**: Occurs at the outside front edge of the eyelid where the eyelashes are attached.
- **Posterior Blepharitis**: Affects the inner edge of the eyelid that comes in contact with the eyeball.

What Causes Blepharitis?

- Allergic
- Seborrheic (Dandruff)
- Bacterial (Staph Infection)
- Demodex Mites
- Irregular Oil Production by the Glands
- Other Skin Conditions Such as Acne Rosacea and Scalp Dandruff
**What Treats Blepharitis?**

- Blepharitis cannot be cured but it can be treated and controlled through proper eyelid hygiene
- Gentle scrubbing of the eyes with a mixture of water and baby shampoo or an over-the-counter lid cleansing product – *OCuSOFT® Lid Scrub® is often recommended*
- Warm compresses can be applied to loosen the crusts
- In cases involving bacterial infection, an antibiotic may also be prescribed.

**Blepharitis Treatment Options**

- Chronic condition needs to be monitored depending on its severity
- Those on oral meds need to be monitored every 3-6 mos.
- Patients need to be well educated on importance of maintaining this chronic condition

**Question (Pam)**

Which eyelid condition is the most underdiagnosed?

a. Demodex  
b. Anterior blepharitis  
c. Posterior blepharitis  
d. Ocular rosacea
Demodex Mites

Demodex mites at 400x magnification: (A) D. folliculorum adult, (B) larva, and (C) D. brevis.

Life Cycle and Risk Factors

• The life-span of the Demodex mite is very short, about 14 to 18 days from the egg to the larval stage followed by five days in the adult stage.
• Because of the limited life-span of the adult mites, mating plays an important role in perpetuating Demodex infestation. For transmission of mites, direct contact is required.
• The rate of Demodex infestation increases with age, being observed in 84% of the population at age 60 and in 100% of those older than 70 years.
• Rosacea predisposes patients to blepharitis mainly by creating an environment on the skin that congests all the oil-producing glands necessary for a healthy dermis and epidermis.
• Once Demodex infestation establishes in the face, it is likely to spread and flourish in the eye, leading to blepharitis and ocular inflammation. Again, this is because the eye is generally inaccessible by daily facial hygiene.

Demodex Mites**

Did You Know?

• Over 75% of patients over age 45 test Demodex-positive.
• Over 40% of blepharitis patients test Demodex-positive.
• 30-fold higher count of Demodex mites in patients with cylindrical dandruff (CD) than without CD.
• Strong correlation between the number of Demodex and the severity of ocular discomfort.

References:
Demodex Mites

How to Identify Demodex® Mites:
1. **Clinical History**: Blepharitis, conjunctivitis or keratitis in adult patients or blepharoconjunctivitis or recurrent chalazia in young patients who are refractory to conventional treatments, or when there is madarosis or recurrent trichiasis.

2. **Slit-lamp Examination**: Identification of CD (cylindrical dandruff) at root of lashes.

3. **Microscopic Confirmation**: Detection of Demodex eggs, larvae and adult mites on epilated lashes.

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Demodex Mites

- Figure below. The clinical features of Demodex blepharitis include: (A) cylindrical dandruff at the root of the lashes (yellow arrow) and inflamed eyelid, (B) conjunctival inflammation, and (C) a corneal lesion (yellow arrow).

1. Do You Know Demodex? These mites, an overlooked cause of ocular inflammation, can be the root cause of your tougher blepharitis cases.
   By Jingbo Liu, MD, PhD, and Scheffer C. G. Tseng, MD, PhD

Demodex Mites

- https://www.youtube.com/watch?v=sgav_kZHi4&feature=youtu.be

Demodex Mites

Treatment Goals:
- Remove adult mites and their offspring
- Help prevent re-infestation
- Alleviate patient’s symptoms
Demodex Mites-Treatment

Long term therapy/maintenance:
Tea Tree Oil is the key!
Cliradex-
Metaleuca Alternifolia

Blephadex-
TeaTree Oil/Coconut Oil

Cliradex-Maintenance Tx

4-Terpineol, an organic compound that safely and effectively cleans and soothes the skin
Naturally: antifungal
antiseptic
antibacterial

Cliradex-Maintenance Tx

Indications: Dry eye
Rosacea
Blepharitis
Cliradex-Maintenance Tx

Directions: 1-2x/day
1 pad/use
-apply to lids/face and do not open eyes for at least 1 minute after lid contact
-tightly closed lids but no squinting

Blephadex

-Tea Tree/Coconut Oil

Blephadex-In Office Use

-Tea Tree/Coconut Oil
-Gentler Tx
-Easy/efficient
MICROBIAL KERATITIS AND
CONTACT LENS WEAR

Dr. Jeff Walline

What contact lens type puts patients at the highest risk of microbial keratitis?
A. Gas permeable
B. Daily disposable hydrogel
C. Frequent replacement hydrogel
D. Frequent replacement silicone hydrogel

Daily Wear

**Overnight Wear**


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<th>95% CI</th>
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**Summary**

- Risk of MK not reduced with improved oxygen permeability
- Gas permeable contact lenses lowest risk of MK
- Hydrogel, silicone hydrogel, daily disposable have similar risks (results vary)
- Overnight wear definitely increases risk
What is your diagnosis?
A. Microbial Keratitis
B. Contact Lens Peripheral Ulcer
C. Contact Lens Acute Red Eye
D. Infiltrative Keratitis

- 45 year old
- Onset last night
- Daily disposable
- Pain = 4 / 10
- - A/C reaction

- + edema
- + stain
- - photophobia
- - lid edema
- + tearing

Identification

Efron N and Morgan PB. Cornea 2006;25:540-4

$19.8\%$ ID as $1$ dz
$67.6\%$ ID as $2$ dz
$12.6\%$ ID as $3$ dz

Identification

Efron N and Morgan PB OVS 2006;83:152-9
Risk Factors

Risk Factors
- Overnight wear
- Smoking
- Not washing hands
- Internet order of CL
- Poor case hygiene
- Wear CL more often
- Rich

Prevention
- No overnight wear!!
- Smoking cessation help
- Wash hands w/ antibact. soap
- Regular follow-up with OD
- Rub, rinse, tissue-wipe, air-dry
- Give eyes a break
- Give me all of your $