Hallway controversies in dry eyes

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Disclosures

Last 12 months
(alphabetical order):

Allergan
AMO
Bausch
Ciba
Essilor
Inspire
Hallway controversies

- Classifications
- PLTTT
- Schirmer test
- Lid disease
- LWE/Marx’s line
- Diabetes
International dry eye workshop (DEWS)


www.tearfilm.org/dewsreport/
Dysfunctional tear syndrome

Classification

Dry eyes
Ocular Surface Disease

Lid Margin Disease
Distribution
No Lid Margin Disease
Can CL wetting be measured on the eye?
Pre-lens tear thinning time (PLTTT)
Tear film layers during CL wear
Surface wetting (32x)

- Good front surface wetting
- Note the specular reflex looks bright, sharp and even.
- Some particulate debris in tears is evident
Pre-lens Tear Thinning Time

- Scan across the lens surface
Pre-lens Tear Thinning Time
Pre-lens Tear Thinning Time
Prelens tear stability: relationship to symptoms of dryness

Milton M. Hom, OD, FAAO.
Adrian S. Bruce, PhD, FAAO.
Pre-lens Tear Thinning Time

- Normal
  - PLTTTT = 5.1 seconds
  - Clinically relevant dryness (mild, moderate or severe)
  - PLTTTT = 2.9 sec
  - p = .011
About 3 seconds or below, PLTTT is statistically significant for self-reported CL dryness

\[ p = .011 \]
Are Schirmer tests useful?
Schirmer test

- Normal is 15 mm of wetting over 5 minutes
- Schirmer I without anesthetic
- Schirmer II with anesthetic
- Measures basal tear secretion
Schirmer test

- 9 normal asymptomatic patients
- 5 to 7 visits over 2 week period
- 68% test results measured less than 6mm
- Severe dry eye is less than 5mm
- 4 subjects measured 0mm
Schirmer test

“The results obtained were inconsistent and it is concluded that the Schirmer Test is unreliable and of little clinical value”

Pauline Cho
Over 600 references to Schirmer test

“Almost everyone hates the test, yet it is one of the few available that everyone understands.”

Jerry Paugh, OD, PhD
Southern California College of Optometry
Can you view the meibomian glands?
MGD progression

Inspissated glands

Inflammation

Foamy tears

“butter’ triglycerides + fatty acids

Toxic fatty acids

“soap” Fat + lye ppt NaCL

Greg Caldwell, OD, FAAO.
Meiboscopy
Meiboscopy

Meiboscopy
Meiboscopy
Lid hygiene sheet
Lid hygiene sheet

- Warm washcloth
- Potato (microwave)
- Boiled egg
- Uncooked rice
- Spa mask

Nichols K CLS February 2006
Lid hygiene sheet

- Rice and sock
- One cup uncooked rice
- Pour into sock
- Sock: long enough to leave about 6 sq in of surface area with a tied knot
- Microwave about 30 seconds
Lid hygiene and massage

By: Milton M. Horn, OD, FAAO; Jerry Paugh, OD, PhD; Alan Kabat, OD, FAAO; Kelly K. Nichols, OD, MPH, PhD; Kirk Smick, OD, FAAO; Adrian Bruce, PhD, FAAO; Donald Korb, OD, FAAO; Shelley I. Cutler, OD, FAAO; Louise Sclafani, OD, FAAO; Paul Karpecki, OD, FAAO.

The eyelids have several tear glands. It is important that they function properly to wet your eye. If the glands get clogged or do not function properly, you may experience burning, stinging or even watering of your eyes. The meibum (the fluid secreted from the Meibomian glands) should be the consistency of vegetable oil. If it hardens, it becomes more like margarine and cannot exit the glands properly. By placing moist heat over the eyes, the hardened gland material softens. (Just as if you were melting butter)

Lid massage with warm washcloth (Can also be done in shower)
1. Use a small, clean washcloth
2. Rinse the cloth with warm water
3. Gently massage the upper and lower lids for 30 seconds
4. Rinse the cloth again with warm water
5. Repeat massage; the oil in the glands can be waxy and needs to be warmed up before it can come out.

Lid expression
1. Follow steps for lid massage as above.
2. Close your eyes
3. Gently press the lower lid in. Try to squeeze the oil upwards with a rolling motion.
4. Start with the side closest to the nose and move out towards the ears
5. You want to squeeze the oil out of the glands shown in the picture below
6. Repeat with upper lid; try to squeeze the oil downwards with a rolling motion.
Case: CL dryness
52 year old female

Maximum wear time 2 hours

Meibomian gland dysfunction (MGD)
Case

- Baseline
- Atrophic meibomian glands
Case
Case

- Lid massage & hygiene
- AzaSite/erthromycin
- Massage into lids
Case

- 2 week visit
- Wearing time increased to 8 hours
- Symptomatic improvement
Case
Case

- 4 week visit
- Wearing time full time
- Added Blink contacts rewetter.
Case
Case

- 80 year old female
- Sometimes cannot keep eyes open for longer than 2 min
- OSDI 47.7 Severe
Staining
Staining
Lid massage with rice and sock
Omega-3 supplement
Blink gel tears up to QID
Lacrilube hs
AzaSite/erythromycin/Restasis/Lotemax
2 week visit

OSDI 29.5 Moderate dryness
TBUT
TBUT
Lissamine green staining

Similar to Rose Bengal
Does not sting
Strips or liquid
Staining
Staining

- MUC 1, 2 and 4 significantly higher
- High molecular weight
- Gel-forming

100% Alcohol Dissolves CD and Stimulates *Demodex* to Emerge from Compact CD

Gao et al, *IOVS, 46:3089-3094, 2005*
What is lid wiper epitheliopathy (LWE)?
Lid wiper epitheliopathy

- 100 patients
- Normal fluorescein breakup time (FBUT) and Schirmer test
- Symptomatic patients, 76% had staining of the lid wiper
- Asymptomatic patients, 12% had staining

Lid wiper epitheliopathy

- Mild
  - Meibomian gland ostium
  - Subtarsal fold
  - Upper tarsal conjunctiva

- Moderate

- Severe
Case

- 22 year old hispanic female
- OSDI: 45.83
- Tear osmolarity: 326
- Severity of dryness score: Moderate
- Tear meniscus height: normal
- Meibomian gland: normal secretion
Lid wiper epitheliopathy
15 subjects without (MGD) and 15 patients with MGD

ML score of MGD group was significantly higher than that of the non-MGD group.

“ML score can be used as a simple and rapid screening score for meibomian gland function.”

Case: Marx’s line
35 year old hispanic male

OSDI: 62.5

Tear osmolarity: 320

Severity of dryness score: Moderate

Tear meniscus height: normal

Meibomian gland: cloudy and thick
Marx’s line
Does diabetes have a connection to dryness?
92 patients with diabetes

Dry eye symptoms

52.8% diabetics

9.3% controls

"The higher the HBA1c values, the higher the rate of dry eye syndrome."

Case
Case: diabetes & dryness

- 52 year old female
- Dry eye symptoms: OSDI 25.0 moderate
- Tear osmolarity: 293 normal
Case: diabetes & dryness

- HA1c: 11.0%
- 6.5% + diabetic


www.freerepublic.com/focus/news/2283903/posts
Case: diabetes & dryness
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Thank you!

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