EDUCATIONAL MOMENTS®

How to assess and manage patients’ Tear Film Quantity

WHAT YOU NEED TO KNOW

Slit Lamp Viewing:
1. Narrow slit beam with low intensity to measure (with eye-piece graticule) or grade inferior tear meniscus height in primary gaze and with normal blinking.
2. High magnification (40x).
3. Direct focal illumination.

Grading:
Tear meniscus height

<table>
<thead>
<tr>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<td>Low: ≤0.1mm or a difference of at least 0.06mm between the eyes.</td>
<td>Medium: 0.1mm to 0.25mm.</td>
<td>High: ≥0.25mm (indicates reflex tearing and/or deficiency in naso-lacrimal drainage).</td>
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Incidence:
Questionnaires – such as Ocular Surface Disease Index (OSDI), Contact Lens Dry Eye Questionnaire (CLDEQ), CLDEQ-8, McMonnies Dry Eye Index, Dry Eye Questionnaire (DEQ).
Combination of questionnaires and other tests/signs/ symptoms.

Aetiology:
Multifactorial, including age, medication, systemic or ocular conditions, environment.

Symptoms:
• Dryness, discomfort, grittiness, irritation, sensitivity to adverse environments.

Signs:
• Reduced tear meniscus height, irregular tear meniscus (notching, right, or scalloped edge), concave tear profile
• Low Schirmer test scores (at 5 mins, normal >10mm, borderline 5-10mm, severe dry <5mm) or low Phenol red thread test scores (at 15 secs, dry eye <10mm).
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WHAT YOU NEED TO RECOMMEND TO YOUR PATIENTS

Recommendations:
• Address associated systemic or ocular conditions
• Artificial tear supplements
• Change lens type (RGP to silicone hydrogel or hydrogel, hydrogel to silicone hydrogel), material or wearing schedule (monthly replacement to two weekly)
• Maintain good lens cleaning including rub and rinse step
• Manage all grades if signs or symptoms exist – improve tear film quality

• Change lens care solution to latest generation of products
• Manage any tear quality issues
• Rewetting drops or liposomal sprays
• Attention to nutrition or nutritional supplements (essential fatty acids)
• Tear retention measures (to reduce drainage and increase tear contact time) such as punctal plugs or surgery

Prognosis:
Generally good resolution of symptoms with appropriate management unless intractable underlying systemic or ocular condition

This series is adapted from A Handbook of Contact Lens Management (3rd Edition) published by THE VISION CARE INSITUTE®

HOW TO FIND OUT MORE

❖ Click here for our guide to assessing the tear film
❖ Click here for a general refresher on slit lamp techniques
❖ Click here for short videos on slit lamp techniques
❖ Click here for a further reading list and references
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PATIENT CASE STUDY

Patient ME is a 55-year-old teacher who has worn monthly replacement hydrogel contact lenses for more than 30 years. Over the past few months she has needed to remove her lenses after 8 hours’ wear due to dry and irritated eyes, especially in heated and air-conditioned environments.

Quiz:

1. What methods would you use to examine this patient’s tear film quantity?
   A. Phenol red thread test  
   B. Schirmer test  
   C. Measuring tear meniscus  
   D. Any of these methods

2. The tear film meniscus height is measured at 0.05mm using the eye-piece graticule. What grade would you record?
   A. Low  
   B. Medium  
   C. High

3. What factors could be affecting this patient’s tear quantity?
   A. Age  
   B. Environment  
   C. Medication  
   D. All these factors

4. Which of the following management options could you consider?
   A. Discontinue lens wear  
   B. Modify lens fit  
   C. Refit with two-weekly replacement silicone hydrogel lenses that are known to perform well in challenging environments  
   D. Refit with RGP lenses

Correct answers:
1: D. These methods all assess tear quantity but measuring tear meniscus height is a non-invasive test and the recommended technique.
2: A. A tear meniscus height of less than 0.1mm is considered low and indicates reduced tear quantity.
3: D. Dry eye is multifactorial and any or all of these factors could be involved, as could systemic / other ocular conditions.
4: C. Changing to a silicone hydrogel lens material and replacing lenses more frequently are among the options to consider.