### Evaluation of conjunctivochalasis

**TEST TO DIAGNOSE**
Dry eye

**DESCRIPTION**
Evaluation of Lid Parallel Conjunctival Folds (LIPCOF) as a potential diagnostic marker for dry eye

**CONDUCT of TEST**
The patient is seated at the slit-lamp, and sodium fluorescein is instilled into the conjunctival sac to enhance visualization of the conjunctival folds. The lower temporal LIPCOF has the most diagnostic value compared to the other quadrants (Schirra et al. 1998).

Grading schemata:

1. Scored using a grading system (originally in German - Höh et al. 1995; modified in English- Meller et al. 1998); the LIPCOF scale:
   - 0: no persistent fold;
   - 1: single, small fold;
   - 2: more than two folds and not higher than the tear meniscus;
   - 3: multiple folds and higher than the tear meniscus).

2. Scored using a grading system (Schirra et al. 1998, modified from Höh et al. 1995); the LIPCOF stage:
   - stage 0: no lid-parallel conjunctival fold
   - stage 1: small lid-parallel conjunctival fold
   - stage 2: medium-sized lid-parallel conjunctival fold
   - stage 3: large lid-parallel conjunctival fold

Or,

3. folds can be counted on the lower temporal bulbar conjunctiva (Miller 2003) or,

This system is based on the number of folds and the height of the redundant conjunctiva with respect to that of the tear meniscus.

A newly proposed and more complete grading system for future investigation of conjunctivochalasis including location, folds versus tear meniscus height, punctal occlusion, changes in downgaze, and changes by digital pressure is available (Meller and Tseng.), but no clinical trial has been reported with this system.

**Web Video**
Not available

**Materials:**
- Slit-lamp biomicroscope
- Sodium fluorescein (standard fluorescein strip or the DRY EYE TEST (DET, Akorn, Inc., Buffalo Grove, Illinois)
- Barrier filter (Kodak-Wratten 12 or 15)

**REFERENCES**

<table>
<thead>
<tr>
<th>Standardization</th>
<th>Time of day</th>
<th>Temperature</th>
<th>Humidity</th>
<th>Air speed</th>
<th>Illumination</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic value</td>
<td>This version: 1] positive predictive value (actually have a dry eye condition): 93.09%, n=26; negative predictive value (definitely free of dry eye): 75.95%, n=267</td>
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<td>Other version: 2] counting of lower temporal LIPCOF: moderate dry eye group (n=14): 2.07±2.16; normal control (n=8): 2.25±0.70, p=0.676</td>
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<td>Repeatability</td>
<td>Intra-observer agreement.</td>
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<td>Inter-observer agreement.</td>
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<td>Sensitivity</td>
<td>(true positives): [positive predictive value: 93.09%, n=267]</td>
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<td>Specificity</td>
<td>(100–false positives): [negative predictive value: 75.95%, n=267]</td>
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<td>Other Stats</td>
<td>14 moderate dry eye patients vs 8 normal subjects: tear osmolarity (p=0.005), corneal staining (p=0.019), and conjunctival bulbar injection (p=0.016) were significantly higher in moderate dry eye group.</td>
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<td>Test problems</td>
<td>The location of the redundant conjunctiva on the lower lid varies, and the size of the conjunctival fold can be changed by gazing direction or digital compression to the eyeball.</td>
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<td>Test solutions</td>
<td>More complete grading system or standardization of conduct of evaluation is necessary</td>
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<td>FORWARD LOOK</td>
<td>Whether conjunctivochalasis is the result or cause of dry eye should be made clear.</td>
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<td>Glossary</td>
<td>LIPCOF = Lid Parallel Conjunctival Folds</td>
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References:

